LOWER MAINLAND EDITION JANUARY 1991 VOL. 4 NO. 1

# The COMPUTER PAPER™

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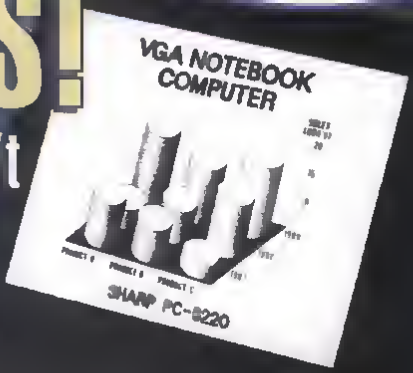
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# LAPTOPS!

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Why Your Next Computer Might Be A 386

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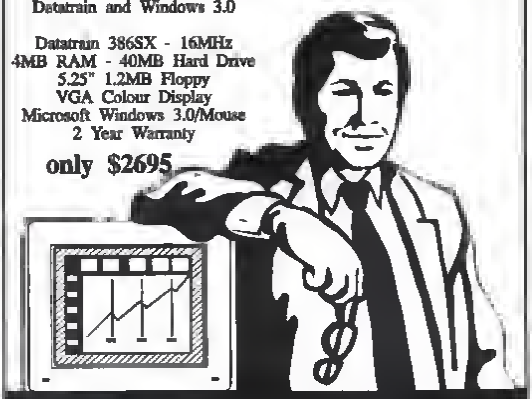


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| USR 14.4 HST | $799 |
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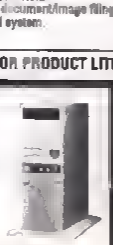
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- MS-DOS 4.01 & GW-Basic

**System Price: $1399**
w/ 14" Colour VGA $1699

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- MS-DOS 4.01 & GW-Basic

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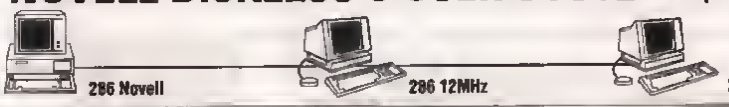
**BYTEWELL 386SX**
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**System Price: $1399**
**w/14" Color VGA: $1699**

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**64K cache extra: $200**
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*The Computer Paper • B C Edition • January 1991*

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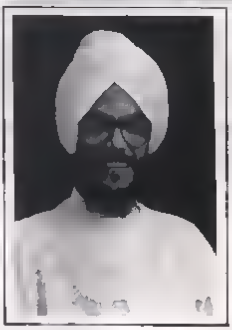
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## FROM THE EDITOR



### Portable Computers

Portable computers keep getting more portable. The notebook computers we look at this month are extremely lightweight and easy to live with At this size, computers can be much more easily integrated into everyday lmog No longer are you desk-bound by your PC, you can take it with you.

I took a trip thus month, and brought along a "pocket organizer", the little Portfolio from Atari I found it very helpful, with itsday-timer and mini-word processor Interestingly, the spreadsheet turned out to be its most valuable asset for me I wanted to play around with the effects of some business projections, and I was able to quickly build a small model of the project and try a few what-if scenarios to come to a better business decision The numbers were right there, I didn t have to wait until I got back from the trip to make my conclusions. I could test my hypotheses right in the field. While the Portfolio has its limitations, portability is one of its best selling points. I can't wait until someone puts out a low-cost 386-based computer with a good-sized hard drive in this pocket style package.

Speaking of speed, GeoWorks Ensemble, a new Mac-like graphical user interface for PCs, is offering up competition to Microsoft's behemoth. Unlike Windows, GeoWorks a written an assembly language for speed. It offers much of the same functionality as Windows, but runs reasonably even on older XT-style computers. Check out our review on page 45.

Ottawa-based Corel is out with a new version of Corel Draw, its very successful Windows drawing program Sales for this package have skyrocketed since its introduction It is recognized by many as the best drawing program an the market, even beating the Macintosh programs in this area Nelson Ruest, desktop publishing wiz extraordinaire and long-time contributor to these pages, is back to give us an overview of the package.

### This Month, We Have....A Really Big Show

This mooth, you will see in our pages the Pacific Rim Computer & Communication Show Guide The show is being held January 14, 15 & 16 at the World Trade and Convention Centre From what we have seen of the products thet will be there, it a a show not to be missed. If you get a chance, drop by our booth and say hello, we are in booth 344.

Enjoy the issue.

Kirtan Singh Khalsa — Editor/Publisher

## MASTHEAD


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**Distribution** Ken Kemp & Ko
**Printer** Transcontinental Printers, Printed in Canada

**Subscriptions**
*The Computer Paper* is published monthly If you would like *The Computer Paper* mailed directly to your home, please send a cheque for $19 95 to Suite B 3681 W 4th Ave, Vancouver B.C. V6R 1P2 Telephone (604) 733-5986. This will cover mailing and handling for 12 issues in Canada. American subscriptions please send $35 in US Funds, Overseas please send $60 Canadian.
This a Volume 4, No. 1 January 1991

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## COMING EDITORIAL SCHEDULE

| ISSUE | DISTRIBUTION | TOPICS | COPY | CAMERA READY |
|---|---|---|---|---|
| February 1991 | Jan 31 | Spreadsheets, Canadian Payroll | Jan 16 | Jan 18 |
| March 1991 | Mar 1 | Desktop Publishing, Laser Printers | Feb 13 | Feb 15 |
| April 1991 | Mar 29 | Telecommunications, Fax Boards, BBS List | Mar 13 | Mar 15 |
| May 1991 | May 1 | Personal Information Managers Laptops | April 15 | April 17 |
| June 1991 | May 31 | 486 Computers | May 15 | May 17 |

# COMPUTER EMPIRE

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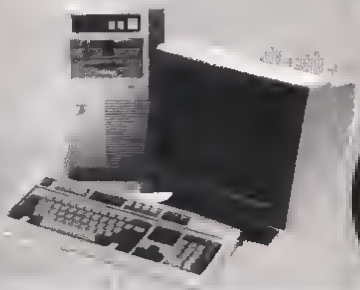
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## LETTERS TO THE EDITOR



### BBS's And Viruses

I really enjoy your paper

Recently I purchased a modem and began getting involved with bulletin boards, although my wife wasn't so keen, because of the hours spent. (i.e. "we don't have any quality time together any more") I have run into an annoying problem. I picked up a virus!! One day the screen said "YOUR COMPUTER IS NOW STONED" and the speed was cut by about one third. I'm hearing that an ounce of prevention is the best cure. This information isn't helping my anger

At this point I don't want to contact any BBS because I don't know if there is a chance of it spreading A good friend of mine has recommended I format the hard disk and do a complete restore from a backup, before I started using BBS Luckily this is possible without too much difficulty

I look forward to your comments on the ounce of prevention

Everyone using bulletin boards watch out.

Robert Chambers
White Rock, B.C.

*Most of the commercial BBS's such as Mind Link! and Suzy regularly monitor their files for viruses. Many smaller one-line boards also use virus prevention programs to protect their customers. It is worthwhile checking out the policy of the BBS board you are using. Since viruses can come from a number of sources, schools, shareware, BBS's, copied commercial software, work etc., it is probably a good idea rather than not using any BBS's to install a virus protection program on your hard drive. A number of good commercial and shareware programs are available. Check with your favorite software retailer for details.*

### Early Renewal

Enclosing a cheque for $19 95 for the renewal of my subscription to the COMPUTER PAPER which expires with the 4/1/91 issue. I do enjoy reading it from cover to cover. My reason for the early renewal is that I will not be at home at the expiry date of the Paper, and I do not wish to miss a single issue. On the last renewal the Reference Number was 11544. Keep up the good work.

Thanks.

Steve Lapshinoff
Crescent Valley, B.C.

### More From The East

I am writing from Hamilton, Ontario because I like your computer paper so much. I am so impressed by its contents that I distributed a copy to my doctor friends in the hospital where I work. They thought very highly of your paper

I would be very grateful if you would mail every issue of this computer paper to me for a fee. I can send you all the mailing and handling expenses. I am sure some of my friends would like to be on your mailing list.

Thank you

Nur Parpia, Hamilton, Ontario

### Guilty Of Low Tech

The Computer Paper — using hand written addresses on envelopes to subscribers?? Shame!!

Anthony H. Crossley, Cobble Hill, B.C.

*Sometimes low tech solutions are appropriate. Your subscription had been delayed, and we wanted to get it to you most expediently. This happened to involve breaking down and using a real-time, human-interface pen plotter*

### Upgrade? — Just Say No

We have been receiving your Newspaper for the last year or so, and enjoy the various topics covered each month.

After reading through the November issue, in particular, the article entitled "UPGRADE? JUST SAY NO!", the timing of this article could not have been better. I have a similar situation with Computer Associates right now and their Accpac Plus Products and upgrades, and due to your article, the letter is finally written and I am enclosing a copy for you, which is self-explanatory

Keep up the good work.

Joyce Prazoff (Ms)
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*Ms Prasaff's letter reflects a similar opinion to the article we recently published. She complains of advanced "features" which savvy programs are guilty of. We all have to take a long look at upgrades to see if they are worthwhile.*

## Computer Corner Comment

Congratulations are due for your August Editorial on the decline and fall of the Computer Corner. You raised a number of salient points concerning the industry; timely warnings perhaps.

It is sometimes apparent that technical advice and support are superficial. However it is rather more difficult for outsiders to judge the financial depth and stability of any local business; particularly when such organizations sport several branches and have large, regular advertisements. Some guidance from a higher vantage point is most welcome.

Also I must thank you and your staff, for the salvage effort which was conducted through your pages. This was truly a public service. In particular I would commend Graeme on your staff. He was cheerful, helpful and efficient.

My own experience was due to the return of a 24 pin printer for a technical problem, which was not solved, although the manual was lost. One week after I telephoned your office, your staff located the printer, which I felt lucky to regain.

So many thanks once again and good luck to your paper.

Cyril R. Williams
Vancouver, B.C.


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## WHAT'S NEW

### Upgrade HyperCard The Easy Way

In the November issue of *The Computer Paper*, we detailed a way to "uncripple" Claris' HyperCard 2.0 for the Macintosh. For those not so adventurous, here are a few other ways to do the deed. *The Liberator* by Greg Kearney, and a revised version by Randy Padawer, dubbed *The Liberator2* are both freely-available HyperCard stacks designed to quickly unlock the hidden features of the program.

Better still is a solution that requires only that the user type in a single "magic word." Just open up HyperCard's Message Box and type MAGIC

Once RETURN is pressed, the magic goes to work. *Voila!*

### Now That's Service

As many readers know, *The Computer Paper* has an electronic bulletin board system (BBS) on *Mind Link!* where our readers can leave us feedback, letters to the Editor, article submissions, classified ads, ready-to-print ad layouts and whatnot. (To log into *The Computer Paper* section of *Mind Link!*, use your modem to call (604) 576-1214, and type COMPUTERPAPER when prompted for your user name.)

While I was retrieving our mail one day, I noticed that *Mind Link!*'s FILE listings would abort at the PRESS ANY KEY prompt if I pressed ENTER. This prompted an E-MAIL letter to Frank I. Reiter of the *Mind Link!* staff bemoaning this apparent anomaly.

The next business day, he explained that I must have configured the ENTER key as CANCEL (not recommended!), and told me how to change it to another, such as the space bar. Good plan, I agreed, and bid him adieu.

A few hours later, I received a fax, an excerpt of which follows: "... I gave your problem some thought and modified our software so that such a problem will be likely to reoccur. The 'Press Any Key' prompt now indicates that you can press your cancel key to abort or any other key to continue." Thanks, Frank!

### New Corel Is Print Speed Champ

WYSIWYG, the Vancouver DTP service bureau that produces—among other things—the color separations for the cover of *The Computer Paper* reports that the new Corel Draw 2.0 has the fastest PostScript output and throughput of any of the Mac or IBM drawing programs they've tested. In addition to its PostScript color separation abilities, Corel Draw 2.0 now includes more-powerful-than-ever text-manipulation commands and an enhanced version of its Corel Trace utility that converts bitmaps into vector-graphic objects. The new Corel Draw, for perhaps the first time, offers PC users a draw program that eclipses anything currently available on the Mac. See the review this issue for full details of this powerhouse package.

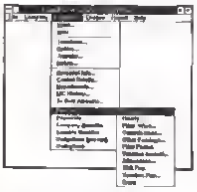
### Windows Fractal Paint

Also new for Windows 3.0 is Fractal Paint, a new shareware title from ComputerSmiths. For those of you who have been living in a cave for the last fifteen years or so, fractals are self-similar

shapes used in mathematics to model complex natural processes. Some examples are clouds, mountains, coastlines, planets, etc. (A great example of fractal graphics is the "birth of a new planet" scene when the genesis bomb goes off in *Star Trek III* But I digress) In use, Fractal Paint's tools produce shapes reminiscent of the recursive doodlings common in the LOGO language's "turtle graphics."

While Fractal Paint will not currently render the kind of 3D terrain views that hard-core fractal junkies adore it does provide a sizable palette of algorithmic tools that can be used to create works that are nevertheless quite *fractalicious*.

You can download Fractal Paint from ComputerSmiths' own BBS at (604) 224-5247, or order it for $25 from ComputerSmiths, 3726 West Broadway, Vancouver, B.C. V6R 2C1, (604) 224-5247



## Windows Payroll: Keep It Simple

Like it or not, Microsoft Windows is making a big noise in the PC world. While DOS-fearing users are filling Microsoft's coffers with sales of millions of copies of their new 3.0 release, developers are working overtime to bring Windows-compatible versions of their programs to market. At last count, over 550 packages were reportedly available for the Windows environment. Here's a couple more

KIS Information Systems has released Payroll for Windows. Like all Windows applications, it uses mouse and menus to simplify payroll duties like employee earnings, deductions, cheque printing and more. The $349 package runs on any PC/XT/AT or PS/2 with 640K RAM and a hard disk, but if you've ever used Windows on a PC/XT, you'll know that "run" is an overstatement at best. Walk, maybe.

Contact KIS Information Systems Inc., at (604) 222-2252 (and dial carefully, or you might end up with a pizza instead of a payroll package!)

## Pocket Info

What weighs one pound, fits in inside coat pocket, briefcase or belt-mounted holster, has no moving parts, is compatible with either Apple Macintosh™ or IBM-PC-type computers and isn't a computer? Good question, we'd say

It's called the Pocket Info Pac (PIP), and according to makers Golby, it's just the thing for those folks reluctant to spend time learning "another computer," who want to eliminate heavy books or cumbersome drawings that can't be easily carried to offsite locations.

The PIP stores—in a compressed form—hundreds to thousands of computer frames downloaded through the serial port of a Mac or PC, and can then display any frame of the stored material at the touch of a button

The battery-powered device promises to be much faster than looking for the desired section of printed material

The PIP uses a high resolution display device called the Private Eye™, to produce an image sharper and brighter than most CRTs, yet visible only to its user for the ultimate in privacy The display unit is only 1" x 1" x 3" and weighs only two ounces. The Macintosh version is available now, with the IBM-PC version available in the first quarter of 1991 For more info about Golby Systems, call Camelot Computers at (604) 439-7082

## A Nice Light Mac... Or Ultimate Portable?

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The CPU unit can be further custom configured with the user's choice of a snap-on battery pack and power supply or a 110/220 VAC-only snap-on power supply The CPU/floppy/power supply can weigh between 5 and 7 pounds depending upon configuration Addition of the 2 1/2 pound top section gives you one of the lightest and most powerful portables. Flexibility can be further enhanced through use of the Private Eye™


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heads-up display option

The CPU/floppy/power supply unit can weigh between 5 to 7 pounds depending upon configuration. Addition of the 2 1/2 pound top section gives you one of the lightest and most powerful portables.

And, if this isn't enough versatility, the top unit can also be plugged into Colby's Nu-Bus card that can turn your Mac IIcx, IIci or the new, very small Mac IIa (available in October) into a very powerful transportable with Nu-Bus provisions. Perfect for those applications when you must have transportability, speed and Nu-Bus capability

And, for the ultimate power user, the Stealth also will plug into Colby's repackaged Mac FX portable CPU unit. This unit is about the size of a business briefcase. It has four Nu-Bus slots (three available with the Stealth adapter in place), a 1.44 floppy and a 45, 90, 180 or 300MB very fast hard drive. The power supply is either a 110/220 VAC 50/60 Hz input module power supply or a 9-18V DC input power supply module.

This combination is the ultimate in portables! All of the speed of a Mac FX with 3 open Nu-Bus slots for color boards, video digitizers or whatever, and the ease of use of the Stealth on your lap. You can use it in meetings, while relaxing in your favorite chair or unobtrusively, while waiting in the airport. You can put only the low profile (1 1/2" thick) Stealth unit on your lap and the CPU part on the floor next to you. The Stealth makes it possible to use a portable in situations that preclude operation of conventional laptops. The Stealth sitting flat in your lap is so much easier to use in all situations than a conventional laptop with its display in the upright position, blocking your view of the world around you and calling attention to the fact that you have a computer in front of you.

## Access Ability

The Open Learning Agency has announced a program especially designed for persons with physical disabilities. Dubbed Access Ability, it is a total immersion program, combining nine months of formal classroom instruction with a three month internship with a variety of employers in the Information Systems industry. For more info, call Open Learning Agency at 1-800-663-1678 or (604) 660-2000

## Innovation Of The Year

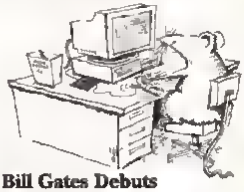
One of the commercial partnerships made possible by TRIUMF, Ebco Industries TR-30 Medical Cyclotron, has been named B.C.'s "Innovation of the Year."

Interesingly, Ebco is also in the news because they are the manufacturers of Canada's largest Menorah, which they donated to the Eitz Chaim Synagogue in celebration of the Jewish holiday Hannukah.

Why was the Menorah, designed by famed Canadian architect Arthur Erickson, funded by non-Jewish Ebco founders Helmut and Hugo Eppich? "To promote goodwill, understanding and friendship," they state. And lighting the giant 28-foot Menorah this year? None other than Premier Bill Vander Zalm and prominent business leader Charles Diamond. It seems as though a little goodwill certainly goes a long way.

## DOS Typist Delayed

Caere Corporation informs us that the DOS version of Typist, "The Ultimate Typing Machine," has been delayed, but as expected by the time you read this. See the review this issue for details on this hand-held OCR device.

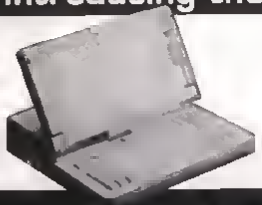


## Bill Gates Debuts At Yuk Yuks

In Microsoft's 1991 *Moments of Madness* in *Microcomputers* Calendar ($11.95, and reportedly a Christmas gift favorite), has the company developed their own wacky brand of humor? You be the judge. Here's the caption for March, set in an old west saloon: "Every number in the joint tensed—it was the new accountant in town, and he was packing Excel. . . " Or how about June's, where a hammock-hanging husband watches as his wife works. "I can't just leap into those chores willy nilly—a backlog of this magnitude calls for Microsoft Project scheduling. . . " And, if you can stand it, here's August's caption for a scene where a couple of novices contemplate their new *Brown Word Processor*. "It sounded great on the TV offer— but maybe we should have gone for Microsoft Word." Har har. Who writes these guys' material, anyway?

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| | INTRA LT-386SX | TOSHIBA T3100SX | NEC POWERMATE PORTABLE SX | TANDON LT-386SX |
|---|---|---|---|---|
| CPU | 80386SX | 80386SX | 80386SX | 80386SX |
| CO-PROCESSOR | Socket for 80387SX | Socket for 80387SX | Socket for 80387SX | Socket for 80387SX |
| MEMORY | 2MB RAM Standard Expandable to 8MB supports SHADOW RAM | 1MB RAM Expandable to 13MB | 6MB RAM Expandable to 14MB | 1MB RAM Expandable to 9MB |
| HARD DRIVE | 40MB (19ms) | 40MB (28ms) | 42MB (19ms) | 40MB (28ms) |
| FLOPPY DRIVE | 1.44MB 3 1/2" | 1.44MB 3 1/2" | 1.44MB 3 1/2" | 1.44MB 3 1/2" |
| INTERFACES | 1P, 1S, VGA Monitor Port, Ext. D. Port, Ext. Keyboard Port | 1P, 2S VGA Monitor Port, Ext. D. Port, Ext. Keyboard Port | 1P, 1S, Ext. VGA Port, Ext. D. Port | 1P, 1S, Ext. P.S/ Port, Ext. Keyboard Port |
| EXPANSION SLOT | 1 Proprietary | 1 Proprietary | 0 - 8/16 Bit Slot | 1 Proprietary |
| KEYBOARD | 86 Keys, | 84 Keys, | 101 Keys Detachable, | 86 Keys |
| DISPLAY | 640 x 480 LCD 0.27 Dot Pitch, 16 Grayscale, Background Reversible | GAS PLASMA 16 Grayscale 640 x 400 Detachable Bracket | GAS PLASMA 16 Grayscale 640 x 400 | 640 x 480 LCD 16 Grayscale Background Reversible |
| OPTIONS Ram Upgrade / 2MB SIP / 6MB SIP | $600 / $800 | $1,400 / $3,200 | $2,295 / $2,995 | $600 / $1,400 |
| POWER SUPPLY | Mini Battery & AC Adptr./Rechargar | Battery & AC Adptr./Rechargar | AC Only | Mini Battery & AC Adptr./Rechargar |
| DIMENSIONS (WxDxH) | 12.5" x 12.6" x 2.36" | 12.5" x 14.25" x 3.25" | 7.8" x 13.2" x 11.8" | 12.5" x 12.5" x 3.4" |
| WEIGHT | 10.8 lbs. | 14.75 lbs. | 18 lbs. | 14.5 lbs. |
| SUGGESTED RETAIL PRICE | $4,999 | $6,999 | $7,599 | $6,299 |
| SELLING PRICE | $4,950 | $5,600 | $5,498 | $4,950 |

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## Math Avoider's Nightmare

In a brochure recently distributed by Computer Associates, they describe the cost of GST upgrades for their line of accounting programs. In particular, one thing caught my eye. The order form instructions section that described how to pay the GST on the 1991 portion of SupportPlus (CA's extra-cost telephone support program) are but a sample. I m sure, of what we will soon be inundated with.

I quote. "As outlined in Subsection 341(5) of the proposed GST legislation beginning September 1, 1990 we are obliged to collect a goods and services tax of 7% on the 1991 portion of our SupportPlus service GST does not apply to "upgrade only" orders To calculate the GST due on your SupportPlus service, please multiply the total dollar value of your SupportPlus order (excluding PST) by the number of months in 1991 to which the service applies. Divide this figure by 12 months and then multiply this amount by 7% ( 07) e.g SupportPlus contract for October 1990 includes 10 months of SupportPlus service in 1991 (SupportPlus price X 10 / 12 X 07 = GST payable) "

Hmm They say that 50% of the population can't figure out how to record with their VCR's. They're probably the same ones who ll never collect the GST rebates coming to them



## New 386 Notebook

Canara Technologies has introduced the newest notebook computer by well-known PC makers Samsung, a 7-pound 16 MHz 80386SX-based unit with 1 MB of RAM (expandable to 5 megs) a VGA display and a scalable "SmartSleep" mode where the CPU monitors screen and keyboard activity before switching into slow mode to extend battery life

The new computer called the NoteMaster 386S/16 features a VGA cold cathode flourescent tube (CCFT) sidelit display said to offer a near-photographic display with up to 64 shades of gray a 1 44 MB floppy drive and 20 MB hard disk, as well as ports for a mouse, numeric keypad, second floppy drive and external VGA monitor A parallel and serial port are also included.

An unusual feature is an external slot for the easy fitting of a numeric co-processor The unit will be bundled with Travelling Software s LapLink file transfer software, and comes with a one-year warranty

Contact. Canara Technologies (604) 270-9655

## New HyperWare For Sun Bathers And The GST

Readers of *The Computer Paper* may remember the review last year of a measurement counter for the Macintosh called ConvertUnits™. Now, one of its developers is back with more new low-cost HyperCard stackware for the Macintosh

Eric Rojo (an architect by trade), has just completed MacHeliodon, intended to help building designers quickly and accurately calculate the direction of the sun from any location in the world at any time. It will also calculate the degree of shading provided by an overhang, even warn you if the entire wall is in shade for the overhang specified. While there are some top of the line 3-D CAD programs that can perform calculations like this, MacHeliodon's $22 95 price is hard to argue with

A second stack, available separately for $22 95 (or both for $32.95) is designed to provide businesses with a convenient method of keeping track of invoices received for the purpose of collecting their GST refunds A click of a button will give the total GST refund due for a given month, and the complete list of invoices that qualify for a GST refund can be printed out for submission to the tax department. The GST Refund Stack comes with HyperCard and Reports 1 2, using the latter application a enhanced printing capabilities. Contact: Eric Rojo, #48-12211 Cambie Road, Richmond B.C. V6V 2H8

## Better Safe

Few things are certain in life One is that all hard disks *will* inevitably fail Another is that manufacturers don't know exactly when their disk will fail This risky "Russian Roulette" is further compounded by the fact that it is impossible to say how long—if at all—it will take to repair a "crashed" disk.

Obviously, backups are essential for businesses or other organizations that are dependent on computerized data The trouble with tape backups, though, is the length of "down time" that is required to recover from a backup

A better solution is called "fault tolerant disk mirroring" and consists of a







hardware and software combo that automatically writes data to a second identical or non-identical hard disk every time the user saves. Should a hard disk fail, the software notifies the user that a disk has failed and immediately switches to the second disk.

This is exactly the concept behind Unitrol's new "Immunity Plus" fault tolerant disk mirroring software and removable hard disk for stand-alone and networked DOS-based PCs. For more info, contact Brian Fry, Unitrol (604) 681-3611

## Pitman Puts $90,000 Into New Computer Lab

Pitman Business College, which recently spent more than $90,000 to install a new computer lab, now teaches courses on a wide variety of computer-related subjects, including DOS, Windows, desktop publishing, Corel Draw, accounting, dBase and word processing (to name just a few), besides their usual business courses. Contact: John Bazilh (604) 738-7848

## Meech Lake By Modem?

A new BBS service promoting public involvement in the constitutional debate is slated to begin operation January 4. Called O CANADA, the electronic information service will contain an extensive library of factual information, and background material on all aspects of the constitution, and will provide a "think tank" atmosphere for structured discussions between its participants.

Independently organized and maintained by ASK Information Enterprises, the project is funded by educational institutions and the one-time $5.00 fee that participants pay to sign up. Users are free to access all of the information without charge, and only pay a nominal $2.00 if they wish to partake in surveys and other interactive topics. Use a modem to call (604) 876-5260 and take a look!

## AutoCAD Expo

AutoCad Canada is presenting the AutoCAD Expo Jan 22, 1991 at the Westin Bayshore. For information call 800-263-3594

# Corrections

## GST Computer Accounting Info Available on *Suzy*

In our October 1990 issue, we ran an article called a Survey of PC Accounting Software. The folks at Suzy sent us a letter asking that we acknowledge Richard Morchove as the author of portions of this article. While we did credit him as a source in the article, he in fact wrote some portions of the material contained in the article. Richard Morchove is an accountant from Toronto who runs the IN (Information Network) about computerized accounting on *Suzy*. It is an excellent source of information on Canadian accounting, especially in these rapidly changing GST times. If you need such information, it is well worth the price of *Suzy* to check it out.

*Suzy*, the software package is available at many computer retail outlets for $29.95 or less. Users can, with the use of a modem and the *Suzy* software gain access to a wealth of Canadian business, real estate, entertainment and computer information. *The Computer Paper* also archives the text from past issues on *Suzy*. *Suzy* is accessable across Canada via Datapac, so that most people in major centres with a Datapac telephone number do not have to pay long distance charges to use it. *Suzy*'s easy to use, "point-and-shoot" interface takes much of the trauma out of going online for first time users.

## Illustrator 3.0 Correction

As it turns out, it was not an Adobe Illustrator bug that caused custom colors to "no longer work when files are exported to other applications," as reported on page 60 of our December issue. The bug—verified as real when I tested it with Quark Xpress version 3.0—vanished as soon as Quark released a bug-fix for their program. The bug-cure's name is Zapper 2.0, and is available free on GEnie, CompuServe, and most BBS's. The bug only affected version 3.0 of Quark XPress, and *was not an Adobe Illustrator bug*.

One other teensy bug made its way into that article too. Steve St. Laurent *actually* operates Hole-In-The-Wall Communications Ltd., an editorial & graphics service company specializing in publication design and communication (604) 255-3258



NEWSBYTES

# Amiga

## Amiga Expo In Germany Is World's Largest

VATERSTETTEN, GERMANY, DEC 10 (NB)—AMIGA '90, the exhibition and conference for the Commodore Amiga computer, held in Cologne, Germany, November 8-11, was visited by 67,000 people. They came to see more than 160 exhibitors from at least fourteen different countries making this the world's largest Amiga-specific show, claim the organizers, AMI Shows Europe GmbH.

Commodore Business Machines GmbH, an official sponsor of the event, had a stand of some 3150 square feet, the centerpiece of which was a forty- foot - high video wall displaying an impressive series of Amiga- produced videos from around the world. An interesting innovation was an art gallery, with more than 90 pieces of Amiga- generated pictures on display.

AMI Shows General Manager, Alexander Gloss, when asked by Newsbytes how successful he thought the show had been, stated: "AMIGA '90 is a clear reflection of the strength, diversity and intensity of the worldwide Amiga market."

AMI Shows already has plans for three shows in 1991- Berlin, April 25-28; London, June 7-9, and again in Cologne in November. Contact: AMI Shows Europe GmbH, Zugspitzstrasse 2A, D-8011 , Germany, 49 8106-31093

## Latest Version Of SAS/C Available For Amiga

CARY, NORTH CAROLINA, DEC 10 (NB)—SAS Institute Inc , based in Cary, NC, which recently assumed full product responsibility for the SAS/C Development System for AmigaDOS (formerly the Lattice C Development System), has announced that version 5 10 is now available.

The new version sits on six diskettes and offers an improved user interface, support for WorkBench 2 0, greater WorkBench utilization, and more.

Existing users can update for forty dollars plus shipping if they have version 5 0, $100 plus shipping for version 4, and $125 plus shipping for earlier versions.

The SAS Institute offers technical support on 919-677-8009, and is investigating the possibility of offering electronic support.

Contact: SAS Institute Inc., Box 8000, NC 27512-8000, Phone: 919-677-8000, Fax. 919-677-8123

# Apple

## Hypercard For Apple IIGS

LONG BEACH, CALIFORNIA, DEC 7 (NB)—Apple has unveiled a version of its Macintosh Hypercard application for the Apple II at the Applefest Conference and Exposition at the Long Beach Convention Center, in California. HyperCard II is said to allow Apple II users to create their own custom software and personalize the way they store, explore and present information.

Like the original HyperCard for the Macintosh personal computer, HyperCard II functions much like a set of index cards. Users store information in documents called stacks, which are made up of individual units called cards. Cards can contain text, graphics, scanned images, and even sound. Buttons on the cards can be used to link cards and stacks, and much more.

HyperCard II supports multiple media including text, graphics, video, sound and animation. It also takes full advantage of the 16-color graphics capabilities of the Apple II. The program comes with a large collection of ready-to-use stacks plus templates and card designs to help individuals create their own stacks.

Apple says that HyperCard II has the full functionality of Macintosh HyperCard version 1 2 5 and will allow II owners to access the many stacks that already exist for the Macintosh once developers convert them for the Apple II

Contact: Sandra Bateman, Apple, 408-974-5460

## Apple & Farallon In Licensing Agreement

EMERYVILLE, CALIFORNIA, DEC 10 (NB) — Farallon Computing and Apple Computer have announced they have signed a long term licensing agreement that will enable Farallon to develop and market AppleTalk networking products for Microsoft's MS-DOS and Windows 3 0 platforms.

Farallon, the maker of the PhoneNET networking system, plans to build on the licensed Apple technology to develop networking products that will be marketed and licensed under the Farallon PhoneNET System name. Farallon will also sublicense its work to other MS-DOS and Windows vendors.

John Sculley, chairman and chief executive officer of Apple, said of the deal, "This agreement with Farallon is one of the best examples of how a relationship between Apple and one of its key developers can create benefits for everyone. Apple's customers benefit from better connectivity options and Farallon benefits by expanding its business."


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**KEYMENU** — Retail value $79

When you purchase these industry-leading software packages, you will need more and or rewriting systems to keep other of all the programs you will remove the time on unbelievable price. You will also remove KeyMacro, the includes: menu management system and DOS shell. KeyMenu organizes programs and eliminates the bloody memory KeyMenu will prepare a complete text diagram of all the directories and subdirectories on your hard disk or includes: to show you either is in storage and instant A single file, or a needs dictionary of files, can be added or removed by the push of a function key instead of using a string of DOS commands. KeyMenu will automatically blank the screen when the includes: of inactivity- pressing any key restores the screen. Disk statistics are always available on a disk complete any time information about the status of about files or directories is needed. File attributes can be changed with a single keystroke and KeyMenu organizes all DOS commands into a single menu KeyMenu offers much more and at about for both new users and only old includes:

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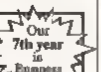
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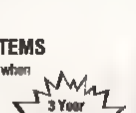
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Contacts: Brooke Cohan, Apple Computer Inc., 408 974-3019, Tricia Chan, Farallon Computing, Inc., 415-596-9312

## Atari World

### SC Plus/286 Expansion For Supercharger

Beta Systems AG, the German developer of the popular SuperCharger MS-DOS emulator for the ST, announces a new expansion kit for the SuperCharger, after presenting the SCplus/NET networking expansion for easy integration into Novell PC networks this fall.

The new SCplus/286 expansion turns the SuperCharger into a PC/AT. The 286 CPU runs with 12 MHz on a real set of chips and comes with its own memory (1-4 MB). It offers real AT slots, allowing usage of standard PC expansion boards like VGA, Fax cards and interface cards. An optional 386SX-CPU will also be available.

The SCplus/286 will be available in Germany in the first quarter of 1991. Beta Systems AG, Staufenstr. 42, 6000 Frankfurt, Germany

## Canadian News

### University Chair To Focus On Managing Change

VANCOUVER, DEC 18 (NB)—Simon Fraser University here and the University of Waterloo in Waterloo, Ontario, will share a joint faculty chair in managing technology change. The universities, two federal research granting agencies, and two private companies will help fund the C$1.2-million program.

The Natural Sciences and Engineering Research Council and the Social Sciences and Humanities Research Council will each provide money for the faculty research position, to be held by Dr. Paul Guild. Guild is the former director of the Design Interpretive Group at Bell-Northern Research in Nepean, Ontario, which will contribute to funding the chair. The other private-sector contributor is the British Columbia Telephone Co.

The key research objective of the program is to find ways to reduce the time it takes to come up with idea for technologically advanced products and services that can be successfully marketed, the backers said.

Contact: Arthur Carty, University of Waterloo, 519-885-1211 ext. 3431, John Hewer or Michael Salter, Bell-Northern Research, 613-763-5542.

### Canadian Association To Fight Software Theft

TORONTO, ONTARIO, CANADA, 1990 DEC 18 (NB) — Pledging to combat illegal software copying through education, Canadian subsidiaries of five major software vendors have founded the Canadian Alliance Against Software Theft. The founding members are Ashton-Tate Canada, Lotus Development Canada Ltd., Microsoft Canada Inc., Novell Canada Ltd., and Quarterdeck Office Systems Canada Inc.

The new group will concentrate on education, Colin Wyatt, general manager of Lotus Canada, told Newsbytes. "The real issue in Canada is ignorance of the law as it relates to software usage," he said. The alliance will seek to educate software buyers through the media, and has published a set of recommendations for companies wishing their employees comply with software licensing terms.

"Our approach is to build some awareness in the user community about the respective rights of software publishers," Tom Pesut, general manager of Novell Canada, told Newsbytes.

Pesut noted that increased use of networks complicates the software licensing problem because a network can make one copy of a program — which may or may not be licensed for use by more than one user — available to multiple users simultaneously. Novell is involved in the new group partly for that reason, he said. "We felt that it was important for us to show some responsibility and get behind the program."

The alliance's education program will focus on three points, outlining software copyright laws, offering guidelines for organizations to establish a software code of ethics, self-audit procedures, review methods and the like, and a public-awareness program to point out the size of the problem.

The alliance will also work with other industry and professional associations and with major auditing firms, Wyatt said.

Contact: Roo Fiorelli of Allan Reynolds, Continental PR Communications for CAAST, 416-596-8988.

## General

### Forrest Mims Starts Science Magazine

WASHINGTON, D.C. DEC 11 (NB)—Forrest M. Mims, III, a noted science writer who was recently dropped from *Scientific American* when the editor learned that he was a believer in creationism, has started his own science project publication, *Science Probe!* The new publication is for all amateur scientists, includes a regular computer column, and does not have any particular philosophical agenda.

Newsbytes spoke with Mims, who commented on the strangeness of being dropped from *Scientific American*, a publication founded by a Christian publisher who stated in the very first issue that he believed in creationism.

Mims told Newsbytes that his new publication would feature a computer column written by William Barden, would have writers from all religious backgrounds, and would be strictly a scientific publication with no religious or philosophical agenda.

He also said that he had received a great deal of support from scientists and journalists after being dropped from *Scientific American's* Amateur Scientist column.

The new publication is a quarterly aimed at all areas of science with an emphasis on do-it-yourself experiments and feature stories as well as information

NEWSBYTES News Network is the largest independent computer industry news service in the world, published continuously since May, 1983, with 4 U.S. and 7 International bureaus in London, Brussels, Toronto, Tokyo, Hong Kong, and Sydney, Australia, devoted to gathering the week's most significant microcomputer and consumer technology news. NEWSBYTES was honored to receive the "Best Online Publication" award from the Computer Press Association. Editor in Chief: Wendy Woods. Janet Endrijonas, Dana Blankenhorn, John McCormick, John and Barbara McMullen, Steve Gold, Peter Vaklins, Ken Takahashi, Naoyuki Yagawa, Paul Zucker and Sean McNamara, Keith Cameron, Norman Wingrove, Nihil Tchaikhin.

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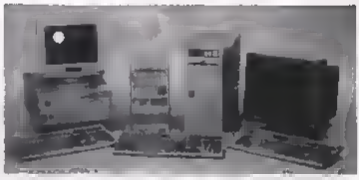
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## GW Micro Announces New Laptops For Visually Impaired

FORT WAYNE, INDIANA, DEC 18 (NB)—Doug Geoffray of GW Micro told Newsbytes that the company has introduced three new Small Talk PC laptops with built-in voice synthesizers for visually impaired users. The three new systems, priced starting at $2495, use GW Micro's Vocal-Eyes software and Sounding Board speech synthesis hardware to provide audible feedback from the keyboard and screen through a pair of headphones which is also included.

The Small Talk 1000SE has a list price of $2495, weighs 6 pounds, comes with 1 megabyte (MB) of memory, one 1.4 MB 3.5-inch floppy drive, and is based on a 9.5 megahertz (MHz) 80C86 microprocessor. MS-DOS 3.3 is included in ROM, and the system is complete with backlit LCD screen, serial and parallel ports.

Small Talk 1000XE is a similar system with a 20 MB hard drive but no floppy drive and a list price of $2995. The third system, the Small Talk 1200XE, lists for $3695 and is a 12 MHz 80C286 system with both hard and floppy drives.

The price for all three new systems includes batteries, AC adapter/charger, carrying case, a one-year warranty, a user's manual on audio tape, floppy disk, and printed documentation. Also included are a memory resident notepad and calculator as well as an MS-DOS tutorial on audio tape. The two systems with floppy drives also come with 10 blank disks.

Contact: Doug Geoffray, GW Micro, 219-483-3625.

# IBM World

## Hitachi Breaks Price Barrier On Color Laptop

TOKYO, JAPAN, DEC 14 (NB)—Hitachi has revealed its first book-sized, 16-bit personal computer and a low-priced color LCD (liquid crystal display) laptop personal computer.

The color laptop B32LXT is nicknamed Gokuni, which means "conspicuously beautiful" in Japanese Kanji or Chinese ideograph. It is a play on words based on Hitachi's product image girl, Kumiko Goto, called Gokuni, who is contrasted with the beautiful TFT (thin film transistor) color LCD.

The machine is 327 by 407 by 90 millimeters and weighs 7.2 kilograms. The price of Gokuni is 678,000 yen or $5,215 for the two FDDs (floppy disk drives) model, and 848,000 yen or $6,523 for the 40 MB (megabyte) HDD (hard disk drive) built-in model. Shipping is slated for January 1991 and Hitachi expects 20,000 units to be sold in the initial year.

The book-sized personal computer,


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B16NX, is named the PowerNote and has two 1.2MB FDDs. A 2400 bps (bit per second) built-in modem is available as an option.

Sleep functions or power management of the book-sized personal computer reduces clock frequency to half and turns off its backlight without a key stroke for certain periods of time. With this power management feature, the PowerNote runs two hours in the FDD model and 1.5 hours in the HDD model with battery power. The price of the PowerNote FDD model is 238,000 yen or $1,850, and the HDD model 428,000 yen or $3,290.

Contact: Hitachi Ltd., 03-763-2411

## Compuadd Launches 386SX Notebook

AUSTIN, TEXAS, DEC 11 (NB)—Compuadd, an 89-store Texas-based chain of computer stores and mail-order operation that makes it own clones, has announced the Companion SX, a 20 megahertz 386SX that can fit in a briefcase and weighs less than 6 pounds.

The unit weighs 5.7 pounds, and measures 8 by 11 by 1.5 inches. The base price of $3,995 includes 2 megabytes (MB) of random access memory (RAM), a 20 MB hard disk, a 3.5-inch diskette drive, a side-lit VGA screen measuring 10 inches diagonally, a PS/2-style mouse port and mouse, Windows 3, and MS-DOS 4.01.

The machine has a capacity of 6 MB of RAM. It's removable, rechargeable batteries are said to give it an operating capacity of three hours. With a 40 MB hard disk, it lists at $4,395.

The Companion SX is expected to be available in the first quarter of 1991.

## Novell Claims 70% Of UK Market Share

BRACKNELL, BERKSHIRE, ENGLAND, 1990 DEC 19 (NB) — Novell has commissioned a survey of the London Times' "top 1000" companies which confirms the position of its Netware operating system in the number one sales slot.

The result of the survey, according to Novell, show that 70 percent of those PC users who have a network in place use Novell Netware. Perhaps more interestingly, the survey of 200 companies chosen at random concluded that 52 percent of companies use networked PCs, a figure that is higher than was previously thought.

Aside from Novell Netware with its lion's share of the network market in the UK, other network operating systems in use include Microsoft LAN Manager with 13 percent, 3Com with 9 percent, IBM LAN server with 5 percent and Torus with 2 percent. The surprise figure is Banyan, which only turned in 1 percent with its Vines software.

According to Novell, the accuracy of the survey was verified by a separate survey with 100 managers from computer dealers supplying networks. Novell reports that some 44 percent of PCs sold through dealers are networked, with 74 percent of these choosing Novell Netware.

Contact: Richard Bailey, A Plus Public Relations - Tel. 0753-586655.

## New Virus Hits At MIT And In London

WASHINGTON, D.C., DEC 11 (NB)—Raymond Glath, creator of VI-SPY, has told Newsbytes that he was contacted last week by the Massachusetts Institute of Technology (MIT) about a newly discovered virus that was affecting several MS-DOS based computers at the school. The new virus, which also struck the City University of London, is a new boot sector virus which therefore must be transferred to a computer via floppy disk.

Glath told Newsbytes that he has already analyzed the new virus, dubbed the "Beijing" virus because of a message referring to the Tiananmen Square incident, and forwarded a modified version of VI-SPY to MIT to clean out the infection.

The new virus can only infect a system from a "bootable" or system floppy disk but it then transfers itself to any hard disk and, after activation, to any floppy inserted in the system whether it is a system disk or not. Glath says that this is the major danger of the new, otherwise rather benign virus, because it apparently doesn't check the type of floppy before infecting it and will often make a disk unbootable rather than merely spreading the virus.

Some 5.25-inch disks are rendered unusable by the virus but so far all 3.5-inch floppies that have been infected have become unusable. The virus is acti-


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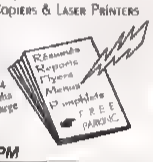
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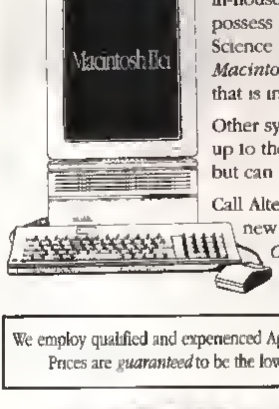
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vated after between 1 and 128 boot operations and thereafter will display its message every six times. The virus will attempt to add itself to any floppy or hard disk and for some disks this will mean that it will overwrite the FAT or File Allocation Table, making the disk useless.

The Beijing virus is apparently intended to spread a political statement because its only designed feature (crashing disks is apparently a bug in the virus) is to display the message "Bloody! June 4, 1989," the date of the Tiananmen Square massacre. Glath says that he feels it is significant that it appeared on both sides of the Atlantic simultaneously because this may indicate a coordinated effort to spread the virus.

Because the new virus is a boot sector virus that bypasses the normal MS-DOS interrupt system, it is not detectable by most anti-virus programs, according to Glath, and even those programs that deal with this type of virus won't properly report the Beijing virus until they are modified. VI-SPY will include the new virus in the next version due to ship at the end of this month but current VI-SPY users who need an immediate update should contact Glath.

VI-SPY, the first software modified to detect the new virus, is an anti-virus program published by R.G.Software, 6900 East Camelback Road, Suite 360, Scottsdale, AZ 85251. Users of the latest version of VI-SPY would only see a report that 2K (2048 bytes) of memory is hidden from MS-DOS by an unknown program, but the next update will fully identify and remove the Beijing virus, according to Glath.

Thomas Grayson, manager of the Transportation Systems Division Computer Department of the Civil Engineering Department at MIT, reports that the virus overwrites absolute disk sector 1 on a hard disk but it also apparently copies the original information to absolute sector 6 so those with the technical know how can probably repair the disk by removing the virus signature and copying the correct information back to absolute sector 1.

Mr. Grayson, an MIT graduate student who did his undergraduate work at Harvard, points out that the boot sector up to 01BE (the HEX or hexadecimal address of the beginning of the second absolute sector on a hard disk) normally contains a small amount of code along with some error messages and a string of zeros but if the Beijing virus has infected the disk it will contain garbage up to the 01BE (HEX) address.

He reports that the origin of the virus is presently unknown because there are a number of students with access to the MIT computers which have become infected.

## GCN Reports Nearly 5,000 U.S. Army PCs Have A Virus

WASHINGTON D.C., DEC 11 (NB)—Robert Greene, a staff reporter for *Government Computer News*, has reported in the December 10 issue that about 5,000 U.S. Army PC computers have become infected with viruses in the last 90 days and that Pentagon officials are concerned about the effect this might have on Operation Desert Shield.

The virus infections are thought to be due to soldiers buying inexpensive local software in Saudi Arabia such as computer games. So far about 4,800 PCs in a network have come down with the Jerusalem-B virus from an infected game disk.

Several other virus strains have also shown up, including the "Stoned" virus which prints the message, "Your computer is now stoned. Legalize marijuana."

McAfee Associates VShield is reportedly now being distributed at test sites in Saudi Arabia to help stem this virus attack.

## Court Strips dBase Copyright

LOS ANGELES, CALIFORNIA, DEC 14 (NB)—Federal Judge Terrence Hatter has dismissed Ashton-Tate's suit against Fox Software for copyright infringement and, in doing so, has rendered invalid Ashton-Tate's copyright for dBASE III Plus. The suit was dismissed "with prejudice" and the use of such language precludes Ashton-Tate from refiling a new suit in the same court.

Ashton-Tate president and CEO, William Lyons, was quoted in saying that the ruling is wrong and that Ashton-Tate will ask the judge to reconsider. Lyons also said that the company will appeal if the ruling is not changed. "We're surprised and alarmed," said Lyons.

As basis for the removal of copyright protection for dBASE III Plus, Judge Hatter ruled that Ashton-Tate, at the time that it obtained copyright, did not reveal that dBASE was based on JPL/DIS, a product originally developed at the Jet Propulsion Laboratories (JPL) in Pasadena, California. Wayne Ratliff, developer of dBASE (originally known as Vulcan), was a former employee of JPL.

In the written ruling, Hatter said that when Ashton-Tate applied for a copyright, it failed to mention the JPL link and, in doing so Ashton-Tate had "repeatedly failed to disclose material information to the United States Copyright Office."

The dBASE language, although claimed by Ashton-Tate as its intellectual property, is used as the basis for products from other software firms including Fox Software, WordTech Systems, and Nantucket Software.

Immediately following the judge's ruling, WordTech issued a statement saying, in part, "Although WordTech has a separate 1987 contract with Ashton-Tate in which Ashton-Tate agreed that WordTech products are free from copyright lawsuit, WordTech believes this decision is a further measure of protection for its customers." The WordTech statement also said "This decision will strengthen the dBASE after-market for dBASE language-compatible databases and follow-on products by encouraging independent implementations of the dBASE language."

Fox Software President and CEO David Fulton told Newsbytes, "We are delighted with the ruling. We feel that justice has been served and that it is a red-letter day for the X-base industry. The ruling removes a cloud from the users of non-Ashton-Tate products and is a just response to the monstrous claims that had been made by Ashton-Tate. The language that underlies the X-base products is estimated to be the most commonly used language for microcomputer applications with up to 5,000,000 users. Ashton-Tate, through this lawsuit, tried to arrogantly establish a monopoly over this

entire group of users. Fortunately Judge Hauer recognized the unfairness of this attempt and reached a fair and proper decision."

Pat Adams, a long-term consultant in the dBASE community and the founding treasurer of the International dBASE Users Group (IDBUG), commented on the ruling to Newsbytes, saying, "Independent attorneys specializing in software and intellectual property issues tell me this is one of the most startling decisions they have seen. I think that the ruling is a victory for the entire X-base community."

Ms Adams explained that the term "X-base" is now being used by the community using what has previously been commonly referred to as the "dBASE language." Adams said that the change in terminology is a result of Ashton-Tate's "recent bawling of anyone using the term dBASE. The bawling has been directed at everyone from corporate competitors to not-for-profit user groups such as IDBUG. In the case of IDBUG, the bawling is almost comical since the group was started with Ashton-Tate approval under that name and we received a corporate sponsorship of $5,000 from Ashton-Tate."

Adams went on, "I see this as a victory for the entire community. Ashton-Tate had not only claimed a look-and-feel issue, it also claimed ownership of the programming language and file formats and even recently tried to establish ownership of the entire marketplace. Its aggressiveness certainly boomeranged. I hope that Ashton-Tate now concentrates on market competition rather than litigation. I think that, whenever a firm attempts to compete in the courts rather than in the marketplace, there is bound to be problems created and I'm glad that the judge has ended this action."

A Wall Street analyst who closely follows the software industry told Newsbytes that he sees the ruling as having far-reaching implications. The analyst, who preferred to remain anonymous, said, "The ruling could trigger a number of forces. Although the dBASE language is considered a standard, it is, in many ways, inadequate. I think that now firms will be willing to invest development dollars to enhance the language." He added that he expected to see ramifications for the Lotus vs. Borland case. "One can certainly say that 1-2-3 is a derivative of VisiCalc and, based on this ruling, that may weaken Lotus' position."

Robert Frankston, vice president of Slate Corp and co-developer of VisiCalc, in a conversation with Newsbytes agreed that there may well be implications for the Lotus/Borland case, saying that although he hadn't read the details of the judge's ruling, "I'm sure that this is something that Borland will pick right up on to see whether there are any ramifications. It would seem to me it may come down to how well Lotus has convinced the court that there was a heavy investment of original work in the development of 1-2-3."

## Metro Software Unveils *PC Artifax*

HENLEY-ON-THAMES, ENGLAND, DEC 11 (NB)—Metro Software has unveiled PC Artifax, the first Hewlett-Packard LaserJet Series II emulation package for PC fax cards.

The UKP 99 package allows users of


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PC Artifax is designed for use on any IBM PC XT, AT, PS/2 or close compatible with 512K of RAM, a hard disk and DOS 3.0 or higher. A minimum of 1.5MB of free hard disk space is required.

Contact: Matthew Murton, manager, Metro Software - Tel: 0491-579857

## Telecom

### Southern Bell Wins Caller ID Without Blocking

ATLANTA, GEORGIA, DEC 7 (NB)—The Georgia Public Service Commission voted 5-0 to allow Southern Bell to offer the controversial Caller ID service without blocking, except for selected police agencies and social service hotlines which request it. The decision is due to be reviewed in a year. Southern Bell spokesman Susan Bradbury told Newsbytes the decision will "increase the privacy of people receiving calls."

Using a special display unit, Caller ID allows consumers to see the number of the person calling them before they answer the phone. When linked to computer programs like Rochelle's ANI Plus, it allows businesses to link incoming numbers to their own databases, or save callers' numbers for later use or sale to mailing-list firms.

Southern Bell pushed hard to offer Caller ID without blocking, saying it would eliminate harassing or obscene calls, and maintain the privacy of people being called. The charge for Caller ID service will be $6 a month for residence customers and $9.50 a month for single-line business customers. Customers who subscribe to the service will also need to rent or purchase a separate display unit.

Southern Bell will provide free blocking of Caller ID service to law-enforcement and crisis-intervention agencies like suicide hotlines and battered women shelters. But it will not provide any protection for others, including customers with unlisted numbers. The effect will be to make unlisted callers' numbers public to mailing-list providers or businesses they call which are equipped with Caller ID software. The service will be offered by the second quarter of 1991.

Contact: Susan Bradbury, Southern Bell, 404-391-2478

# The Computer Paper Crossword

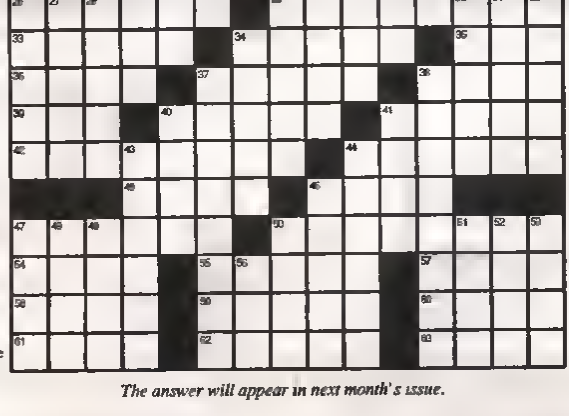
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**ACROSS**

1 War story tno
5 Lotus 1-2-3 function
10 Health resorts
14 PC manufacturer
15 Hollywood oldie
16 Commodore US PC
17 Software rental?
18 Godley's partner
19 Geometric factor
20 One way to measure floppy disk backups
22 Doppler clone
24 Request of a nomadic backwards people
25 Perry's creator
26 Traffic type
29 Poor quality
33 Doyle canine
34 MIDI guitar parts
35 Bluth's Secret of N–
36 Illustrator filetype
37 Illustrator template purpose
38 Descendant
39 ML instruction
40 Where the Atari upgrade path leads
41 Famous bug eyes
42 Speedy chips
44 Doesn't matter
45 A.I. element
46 40960 in hex
47 Headgear of a backwards people
50 Famous aliens
54 Support system of a backwards people
55 Famous expression of programmers
57 Of a time
58 C procedure
59 Stooge call
60 Famous sub captain
61 Atari game language
62 This word has none
63 Fishing duck

**DOWN**

1 AmigaDOS can handle more than one
2 Western
3 386 mode
4 IBM home
5 Unit of measure
6 Tapestry
7 Firesign bozo
8 BASIC command
9 PC word processor
10 What a computer virus usually does
11 MacPlaymate genre
12 To shelter (naut.)
13 Famous Xerox GUI
21 Laptop maker
23 Drive maker
25 Choose
26 Road end in S. Fran.
27 Heart part
28 Sound generators
29 Bright points of a backwards people
30 Root of symbols
31 Doubtful edit-deed
32 Speed test tones
34 NeXT DTP maker
37 Asymetrix's first
38 Best headlights
40 ~vision's Targa
41 1969 destination
43 Disks have these
44 Output of SID chip
46 Computer type
47 Electricity sources
48 Mac startup file
49 Unit of measurement
50 K-Switch developer
51 WordPerfect HQ
52 Log-in requirement
53 Speed of original PC
56 Canadian pastime



*The answer will appear in next month's issue.*

### Jupiter Head Calls Prodigy Top Online News of 1990

NEW YORK, NEW YORK, DEC 14 (NB)—Prodigy, and the rest of the industry's response to it, was the top online news story of 1990, according to market analyst Josh Harris. Harris, whose Jupiter Communications studies the industry and whose monthly *Connect Times* newsletter covers it, told Newsbytes that, whether it succeeds or not, the IBM-Sears joint venture has had a profound effect on the online services business.

"Everyone changed their billing structure to some sort of flat rate, except CompuServe," he said, in response to Prodigy's flatrate pricing. GEnie, for instance, introduced its Star*Services, with dozens of services offered at a night-time rate of $4.95 per month. For 1991 Harris expects a further response from the older players in the online industry.

"GEnie and CompuServe will more ardently pursue a graphical interface," he predicted. But Prodigy will have to respond to the older part of the industry and hasn't in the past, he added. "Prodigy will add some of the features its competitors have, like uploading and downloading of files, as well as real-time messaging and technical support."

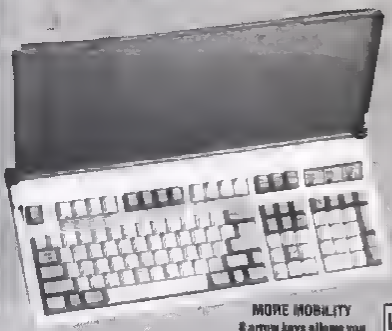
Harris also feels shopping and online games will start to take off in 1991, partly because of Prodigy and partly because of new technology.

As to who's making money online, Harris has a one-word answer: CompuServe. "CompuServe makes a lot of money. HR Block owes them, and without CompuServe they'd be in trouble." Harris estimates CompuServe will net $36 million in 1990, with the CompuServe network netting another $44 million. Still, Harris says, CompuServe has not grown at a fantastic rate in years, having taken 2 years to increase its membership by less than 50%. "GEnie has grown a bit," Harris adds, but he's skeptical of the membership numbers being put out by all of the "big 3"—CompuServe's claim of 725,000 users, Prodigy's claim of 600,000, and GEnie's claim of 235,000.

The Bell Gateways, Harris feels, are dead in the water. "They're never going to do anything, as they're configured now," he says. "The guys there now are small local IPs who aren't running systems properly. Why advertise the gateway when users can't get to other services with it? In France the gateway works because there's no competition for the Kiosk, which is what they call their gateway. In

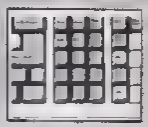
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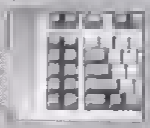


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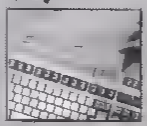
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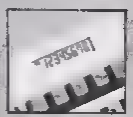
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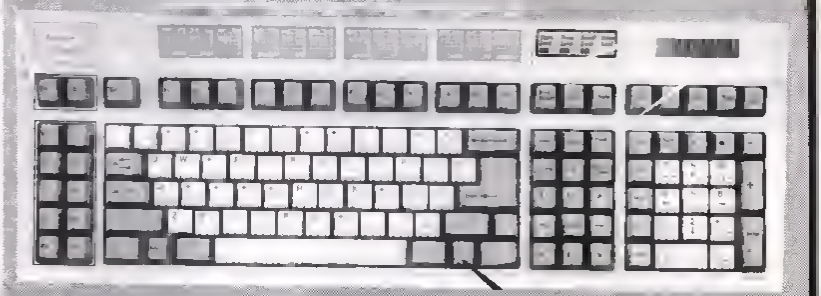
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the U.S private packet nets, "like Sprintnet, Tymnet, and the CompuServe network do rather well."

Contact: Josh Harris, Jupiter Communications, 212-941-9252, GEnie, JMHARRIS, CompuServe, 74746,160

## Tele Like It Is

Information technology consultant and industry coommentator Keith Cameron suggests that "All that is needed now is for these information services worldwide to publish subscriber directories, like any telephone company. At present, we have the ludicrous situation of computer users being able to exchange electronic mail with anyone around the world provided they have first contacted them by some other method to ascertain their user address."

## Quotable Quote

NCR Chairman Charles Exley, on AT&T's hostile takeover bid for his company: "AT&T's new slogan should be 'reach out and grab someone.'"

## Northwest Cellular Service To Be Linked To Canada

KIRKLAND, WASHINGTON, DEC 14 (NB)—McCaw Cellular is upgrading its switching system to provide seamless coverage from the Pacific Northwest to the whole of Canada. Callers in Washington along I-90 or I-5 will soon be able to make and receive calls regardless of where they are at any given time, without having to use cumbersome special- access codes or roaming numbers.

The plan can be seen as the harbinger for McCaw's goal of creating a complete nationwide cellular network. McCaw paid $1.5 billion to acquire Lin Broadcasting in a bidding war with BellSouth to become the main beneficiary of such a network.

Initially, system conversion in Seattle, Portland and Spokane creates a seamless network extending into British Columbia. The new network, however, will soon expand throughout Canada, where McCaw Cellular has reached an agreement with Rogers Cantel of Canada to integrate the two systems. Cantel has already developed a nationwide network that is compatible with the new Cellular One switch to be installed in Seattle.

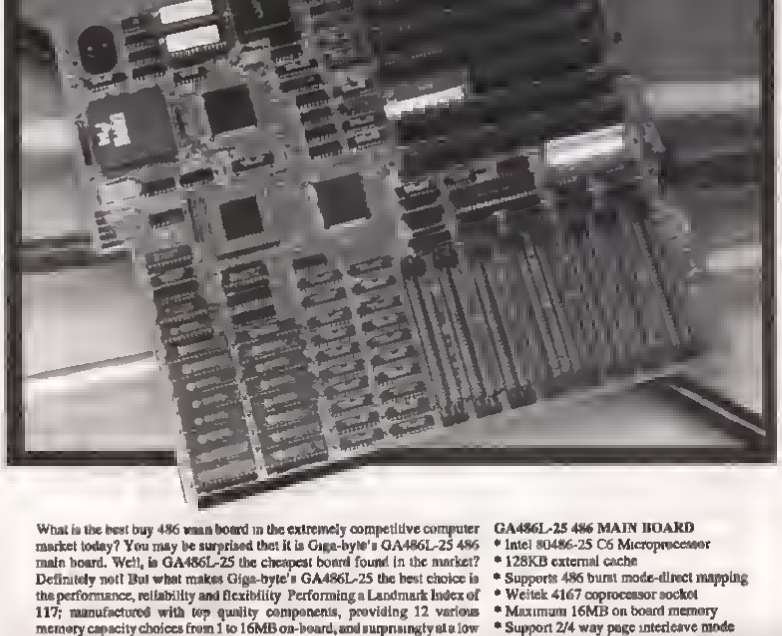
By virtue of this arrangement, a Cellular One customer based in Seattle who happens to be in Montreal, for example, will be reached by dialing the Seattle telephone number and it will ring in Montreal without using any roaming or access codes.

The new switches and cell sites are digital-ready in anticipation of a conversion to a fully digital cellular network. Because a digital system speeds transmissions while allowing the network to handle many more calls, the new network will also allow for an additional range of services—such as data transmission via computer and fax.

An industry spokesman said that, for the U.S., nationwide call delivery is "only a year away. I'll be able to take my Washington-based phone to Chicago and my Washington number will find me there. We've already validated the technology."

Contact: McCaw Cellular: Bob Rathfie 206-828-8685


# THE GIGA-BYTE POWER BUSTER



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## Dutch Software Pirate Arrested

THE HAGUE, NETHERLANDS, DEC 14 (NB)—Dutch police have arrested a civil service employee from the Dutch Ministry of Defense on charges of setting up a software distribution center with programs he copied from his employer. The Dutch branch of the Business Software Alliance watchdog group has filed an official complaint.

The 35-year-old Delft, Holland resident may stand trial for infringements on copyright, fencing, and stealing while on official duty. Police say they found a stack of illegal software and an unproved catalogue with 1,200 titles elsewhere in The Netherlands and proceeded with an investigation assisted by The Hague Pilot Team to Fight Computer Crime.

The dossier will take a few weeks to be completed, a police spokesman said. But there was no confirmation of when or if the District Attorney will begin criminal proceedings against the Defense Ministry official. The impounded illegal software has an estimated value of 1 million guilders ($750,000) according to the spokesman.

Earlier this year, Novell had successfully managed to force a software pirate operation out of the market after a year of court battles. Computer Technology de Espana is no longer allowed to sell CompNet after a judge ruled that part of the software was copied from Novell's NetWare.

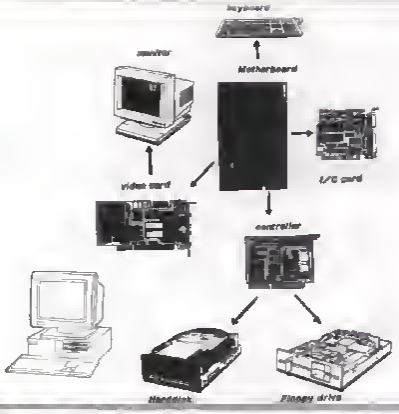
## Hayes Patent Case Set For January Trial

ATLANTA, GEORGIA, DEC 11 (NB)—Hayes' patent-infringement suits against Ven-tel, Prometheus Products, Omnitel and Everex have been set for trial starting January 4 in the U.S. District Court for the northern district of California in San Francisco. Hayes is charging the four with violating a patent first filed by Hayes co-founder Dale Heatherington, and granted in 1985 as number 4,549,302. Hayes wants an injunction against further modem manufacture by the four companies, damages

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| Maxtor 84 MB (19 ms) IDE voice coil hard drive upgrade | $ 245 |
| Rodime 110 MB (19 ms) IDE voice coil hard drive upgrade | $ 330 |
| second serial chipset | $ 9 |
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| GoldStar 1430 14" colour VGA monitor (640x480, 31dp) w/ OAK VGA card 256 K | $ 330 |
| Legend 14" (1024x768, .28dp) colour VGA maxtor w/ Paradise VGA OEM card 256K exp 512K | $ 420 |
| Morse 14" (1024x768, .28 dp) colour VGA monitor w/ Paradise VGA OEM card 256K exp 512K | $ 485 |
| Seiko 1440 (1024x768, .25 dp) multisync monitor w/ Paradise VGA OEM card 256K exp 512K | $ 780 |
| NEC 3D (1024x768, .28 dp) multisync monitor w/ Paradise VGA OEM card 256K exp 512K | $ 885 |
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| Microsoft Hi-res serial or bus mouse w/ paintbrush | $ 108 |
| Microsoft Hi-res serial or bus mouse w/ Windows 3.0 | $ 153 |
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| 16-bit IDE host adapter HD/FD | $ 27 |
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| Fujitsu DL3400 24-pin printer 240cps draft 60cps LQ | $ 465 |
| Colour option kit for Fujitsu DL3400 | $ 100 |
| Star NX1001 9-pin printer 192cps draft 45cps NLQ | $ 235 |
| Star NX1020 Rainbow 9-pin color printer | $ 295 |
| Star NX2420 24-pin printer 180cps draft 60cps LQ | $ 459 |

### Math Coprocessor:

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| Cyrix 387DX-25 | $ 535 |
| Cyrix 387DX 33 | $ 645 |
| Intel 80287-10 | $ 295 |
| Intel 80387SX-16 | $ 405 |
| Intel 80387DX-20 | $ 510 |
| Intel 80387DX-25 | $ 605 |
| Intel 80387DX-33 | $ 740 |

### Modems:

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| CPI 2400 bps Internal modem w/ Procomm | $ 90 |
| Cardinal 2400 bps internal modem w/ Software MNP5 | $ 100 |
| Cardinal 2400 bps external modem w/ software MNP5 | $ 145 |

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for past infringement, attorneys' fees, prejudgement interest, and treble damages for willful infringement.

The Hayes patent applies to modems that require receipt of an escape sequence bounded by a guard time to escape to a PC communication software program's command mode. It covers all Hayes-compatible modems, because the sequence is a crucial part of the Hayes AT command set.

In recent events concerning the patent, Presiding Judge Samuel A. Conn has granted Hayes motions to dismiss all antitrust claims made by the four, and the Circuit Court has upheld Conti's ruling not to hold the patent invalid without a trial. In order to win, the defendants must prove to the trial court that the Hayes patent is either obvious or invalid in some other way. Recent court rulings have increased the protection offered by patents in the computer field.

Hayes also has protection for its patent in France, Germany, Italy, the United Kingdom, and Canada. A second patent-infringement case against Multitech is being pursued in the U.S. District Court for Minnesota, but no trial date has been set there.

Contact: Hayes, Peggy Ballard, 404-449-8791.

## Philips Sets WAN World Record

NUREMBERG, GERMANY, DEC 12 (NB)—Philips Kommunikations Industrie says it has successfully bridged 153 kilometers at a speed of 2.5 GB per second without a repeater. The test was carried out under stable conditions with a laser in single mode. The wide area network makes use of a 1,550 nanometer wavelength. Philips said that the speed and the capacity is equal to 30,270 digital 64KB channels and hence is a new world record.

For the test, a new 2 milliwatt laser was developed, as was a new optical reception system.

The Synchronous Digital Hierarchy standard opens new horizons, according to Philips, and may lead to worldwide networking standards, its importance in big as the development of ISDN.

In June 1989 Telecom Australia announced two field tests for SDH-transmission. Philips was offered the contract in February this year to deliver SDH multiplexers and a networking management system. The field tests of the Australian PTT are the first in the world and are expected to start in 1991.

Philips is linking up with Californian Optilink on the Aussie contract. Optilink is a pioneer in Synchronous Optical Networking.

# Trends

## Electronic Patent Application Starts In Japan

TOKYO, JAPAN, DEC 10 (NB)—The world's first "paperless" patent application system has debuted in Japan. The country's Patent Office now accepts patent applications electronically on floppy disks or online, rather than just on paper.

The Patent Office has been making an effort to almost do away with paper in order to facilitate the judging of applications. As a part of the project, the office has contrived a new system to accept the applications in electronic data form. The aim is to improve the currently overstrained examination process, patent applications are filed at the rate of 726,000 per year.

The electronic application, made online or in a floppy disk, can be transferred to the host computer of the Patent Office via ISDN (Integrated Services Digital Network) or DDX-P (Digital Data Exchange-Packet). The floppy disk application must be made in JIS (Japan Industrial Standard) format based on the Patent Office's electronic application standard specifications. This means the applications cannot be formatted for MS-DOS.

One of the major advantages of the new application process is that documents filed electronically do not need a seal, a process required of paper applications. The identity of an applicant is established by ID (identification) and password in the case of an online filing and by bar code label in a floppy disk.

The Patent Office expects that the new application system will bring about a switch of 80 percent of the patent applications from the current paper format to online or floppy disks within a year.

## First U.S. VDT Safety Law Approved

SAN FRANCISCO, CALIFORNIA, DEC 11 (NB)—San Francisco has become the first city in the nation to pass a local ordinance designed to protect the health of those who work at video display terminals (VDTs). The law calls for breaks for VDT workers every 15 minutes, ergonomic equipment, and more research on radiation and other hazards for VDT workers, among other measures.

San Francisco supervisors voted 8 to 1 to approve the measure, which will come up for a second vote next week before reaching the desk of Mayor Art Agnos.

The law affects businesses with at least 15 employees and allows them to take up to two years to provide comfortable and safe equipment with which employees


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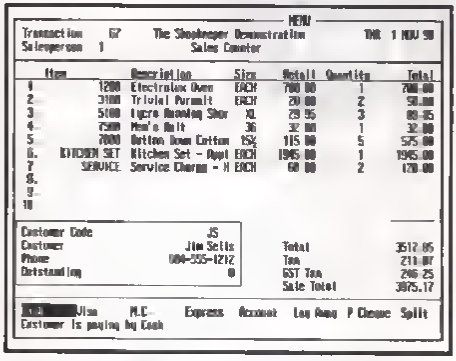
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Nigel Findley, Columnist
Business in Vancouver · Dec.11/90

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Hugh Kirby, Columnist
The Bottom Line Guide to Business Software, May 1990




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can work, including better lighting, wrist rests, and adjustable chairs and tables. The law also calls for employees who work at the terminals all day to get regular breaks at 15-minute intervals in order to stretch and rest their hands and arms.

The third provision calls for a panel to advise the city on new developments in research concerning potential hazards at VDT terminals, including radiation dangers as well as repetitive motion injuries.

Experts estimate the law, which is backed by the Service Employees International Union, will cost the city $1.4 to $6 million to enforce. The cost has become an issue with the city's Chamber of Commerce, which is taking out newspaper ads proclaiming that the law sends a signal that "San Francisco is not a good place to do business."

However, the measure's supporters, including Supervisor Nancy Walker, say that the money has already been earmarked by the city, which has promised to upgrade facilities for its workers.

## SFO Hosts First Public Virtual Reality Show

SAN FRANCISCO, CALIFORNIA, DEC 12 (NB)—The world's first public conference devoted to the emerging field of "virtual reality" drew a respectable 315 show-goers and showcased some commercial and near-commercial products from the 10 exhibitors.

Sponsored by Meckler Conference Management of Westport, Connecticut, producers of the fledgling Virtual Reality Report, the show was held at the Cathedral Hill Hotel in San Francisco and is promised as the first of many.

The next show will be held in London at the Cavendish Conference Center on June 5, 1991. Phone the Meckler Ltd. group at 071-931-9985 for more information.

There was a great deal of enthusiasm among the many distinguished speakers for this emerging field, but little consensus as to what it is, or its potential. Experts define it differently, from the simple "stereoscopic head mount" of Steven Aukstakalnisis, consultant on virtual reality, to "a form of interface characterized by an environmental simulation controlled only in part by the user," a definition from Michael Spring, professor at the University of Pittsburgh.

Additionally, the term "cyberspace" is interchanged with virtual reality, cyberspace being defined as "the illusion of being somewhere other than where you are," by Randal Walser of Autodesk, and as "a consensual hallucination experienced daily by billions of legitimate operators in every nation, by children being taught mathematical concepts," by William Gibson, author of *Neuromancer*.

Although there are few if any serious commercial applications of virtual reality being employed today, most of the research is in the labs, experts say. Projects are underway at the universities of Washington, Pittsburgh, UC Santa Cruz, and the University of North Carolina, Chapel Hill, among other places.

The research involves use of headmounts, sensors, eye controllers, Polhemus magnetic trackers, and software, such as that designed by Sense8, of Sausalito, California, which provides tools to integrate various input sources with the Digital Video Interactive technology of Intel. The projects are designed to enable a person to experience an alternative reality in which they can physically interact. At the show, Sense8 demonstrated this concept both by use of a head-mounted device and simply with a monitor on which a 3-D scene could be manipulated with a "spaceball"—a device similar in appearance to a trackball, but capable of moving the onscreen image in three dimensions.

Entertainment has been the most enthusiastic market for the virtual reality technology; the most successful product to date from this field is the Dataglove, which sold $115 million worth in its first year. The Dataglove enables gameplayers to direct action on screen without touching a keyboard or a mouse, but simply by moving their fingers. The technology was created by VPL Research of Palo Alto, CA.

The entertainment field also features the "virtual reality" arcade called Battletech Center, a popular Chicago center where gameplayers are physically placed inside closet-sized modules and immersed in the audio and video of an interactive futuristic battle. Jordan Weisman, president, tells Newsbytes that the concept has been so successful that new facilities will be opened soon in New York, Los Angeles, Florida, and London, with San Francisco and Boston on the drawing boards. He says the Chicago center has had 40,000 customers since its opening late in the summer.

There was also a head-mounted LED display system for a PC which fits over one eye. The Private Eye, $795 to endusers, is from Reflection Technology of Waltham, MA. Al Becker, company president, told Newsbytes that 500 companies are developing applications for it.

One of them is combining the head-mounted viewer with a CD-ROM player. Reddy Information Systems of New York City says its bundle is designed to appeal to the mobile blue-collar worker like airline mechanics and surveyors, who need to see data while they work, in a


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portable fashion Liz Rich, CEO, tells Newsbytes that the firm is seeking a second round of venture capital before selling the product commercially.

Still, the bugs to be worked out of virtual reality tend to involve the speed of the hardware, says Sense8's Patrice Gelband "The processors in the sensing devices are too slow," she said, adding that an even bigger problem is the comfort of the devices people must use. "With the gloves (Dataglove), people's arms get tired. All these issues have to be resolved."

### Unstable Russian Govt Drives Computer Prices Up

MOSCOW, U.S.S.R., DEC 10 (NB)—The unstable political situation and signs of coming big changes in state fiscal policy have raised rouble computer prices.

According to a variety of dealers and buyers of computers and other electronics in Moscow, the price of a standard AT rose from 43-45 thousand roubles last week to 54,000-55,000 roubles now. Fax machines are also up, from 11-15 thousand roubles to 15-22 thousand.

Last month, President Gorbachev issued a decree that takes 40% of foreign currency earnings from all Soviet enterprises "to service state debt payments." This decree and rumors about coming limitations for rouble transactions has forced many people to spend money—local and foreign—investing in small but expensive units such as computers, according to Leonid Malkov of Paragraph, a joint venture.

## Unix

### Uniforum Canada Unveils 1991 Slate of Events

TORONTO, ONTARIO, DEC 10 (NB)—UniForum Canada, the national Unix users' group, has announced its schedule of events for the coming year. It includes a national show and conference in Toronto in May, a French-language show and conference in Montreal in October, and a road show for western Canada.

The Open Systems for Government Show and Conference will be held at the Ottawa Congress Centre in Ottawa on January 16 and 17.

UniForum's Canadian Executive Symposium on Unix and Open Systems is scheduled for Toronto's Prince Hotel on March 6 and 7.

The Open Systems Road Show and Seminars will be in Calgary March 4 and 5, in Edmonton March 7 and 8, and in Vancouver March 12 and 13. The Calgary and Edmonton events are at those cities' convention centres, while the Vancouver venue is the Robson Square Media Centre.

The National Open Systems Show and Unix '91 Conference is scheduled for the Metro Toronto Convention Centre on May 15 through 17.

Finally, Les Systemes de Quebec et Conference will be held at Place Bonaventure in Montreal on October 10 and 11.

Contact: Fawn Maureen Luhmann, UniForum Canada, 416-239-3043

### Insignia Buys DOS-Under-Unix Technology

SUNNYVALE, CALIFORNIA, DEC 18 (NB) — Insignia Solutions, the British publisher best known for software that lets users run MS-DOS programs on Macintoshes, has bought technology that will let Unix users run MS-DOS applications. The seller was Phoenix Technologies, one of the pioneers in cloning IBM PC components.

Price of the sale was an undisclosed number of shares in the privately-held Insignia.

Phoenix, based in Norwood, Massachusetts, was one of the first companies to duplicate the IBM PC's basic input/output software (BIOS) —thus allowing the "cloning" of MS-DOS systems. It currently makes a variety of system software products. Though it claims more than 200 companies as clients, Phoenix has been in financial trouble for some time.

Insignia Solutions is best known for its product SoftPC, which lets users run MS-DOS programs on Macintoshes, SparcStations and Next computers. The software emulates Intel processors on non-Intel platforms. The company is headquartered in High Wycombe, England, and has U.S. marketing offices in Sunnyvale, California and Andover, Massachusetts.

The ability to run DOS programs as a task under Unix is not new. Several vendors have sold such a system since 1985, with varying degrees of commercial and technical success.

Contacts: Roger Friedberger, Insignia, 408-522-7600. Richard Levandov, Phoenix Technologies, 617-551-4005.

## Windows

### Microsoft Releases OLE Specs

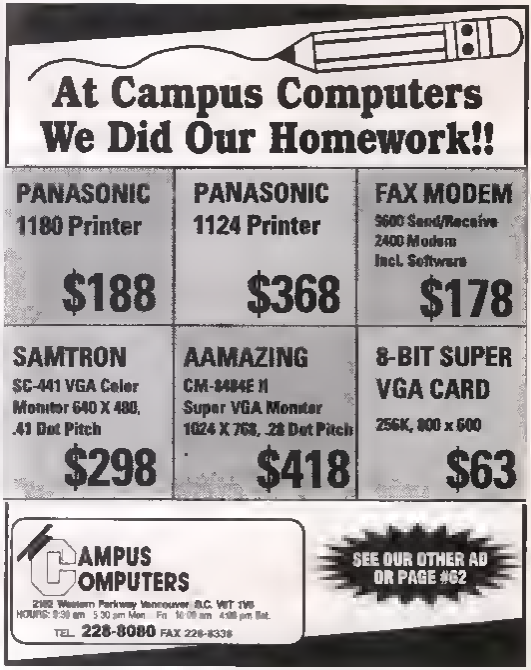
REDMOND, WASHINGTON, DEC 18 (NB)—As promised "by the end of the year," Microsoft this week released preliminary specifications for Object Linking and Embedding (OLE), a protocol that could considerably expand the power of Windows.

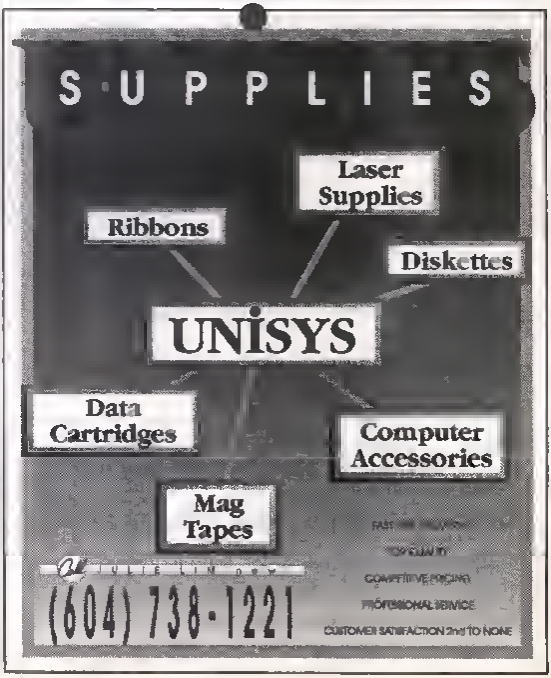
Based on the Dynamic Data Exchange (DDE) protocol that already exists within Windows and which allows systems integrators to add the functions of off-the-shelf Windows applications to each other, OLE represents Microsoft's attempt to bring a form of object-oriented programming to office automation. They have labeled it, "Information At Your Fingertips." The new specs envision calls to Application Program Interfaces (APIs) embodied in Microsoft-supplied OLE-related Dynamic Link Libraries (DLLs—the Windows version of overlay program files). The use of DLLs invoked at the API level should greatly simplify the work of application programmers, who previously had to work directly with the Windows "messaging loop"—a chore widely described as "hairy at best."

The specifications were announced (and the DLLs distributed) at a system-design workshop hosted by Microsoft in Redmond, Washington, attended by more than 200 software developers. The specifications were reported to be arrived at after input from Lotus, Aldus, WordPerfect and Micrografx.

"Object linking and embedding is an important step forward in improving the very fundamental ways the user is able to integrate and share application information, both individually and as part of a workgroup," announced Bill Gates, Mi-

CONTINUED ON PAGE 29

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LAPTOP COMPUTERS

# Notable Notebooks

*by Daniel Werger*

**Products**
Toshiba T1200XE
Sanyo MBC-17NB
Sharp PC-6220

If all human beings came equipped with photographic memories and simultaneous telepathy, computers would be redundant. Unfortunately, we have almost zero retention of facts and spend most of our lives trying to repair misunderstandings with each other!

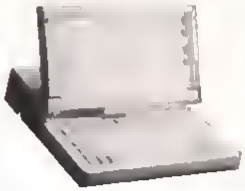
What we *are* good at is understanding conceptual relationships between events and actions. In other words, we are great at data management, but poor at data storage. In the past, books have been good for information storage, and adding machines good for numeric calculation. Graph paper and pencil provided good fast graphic representation of data. Notepads and pens provided writing ability for recording data.

## Enter the Computer

The first computers were so big they wouldn't fit in your house, let alone in your briefcase. Then they fit on your desk, but needed a weightlifter to move. Then they became "luggable," another way to describe a dislocated shoulder. Finally, today we have progressed to the "notebook" computer.

Within the last year or so, notebook computers have begun to proliferate. They are small enough to fit in a briefcase, light enough to be picked up with one hand by a normal human being, and powerful enough to "take your office anywhere."

What separates the notebooks from the laptops, desktops, minis and mainframes is that they function without the need for a trunk full of peripherals and don't require the user to squint or use a magnifying glass to see the screen.



## Toshiba T1200DXE

The heart of the Toshiba is an 80C286 microprocessor switchable between 12 and 6 Megahertz. It runs under MS-DOS 4.01 and comes standard with one meg of RAM. This machine is powered by one rechargeable NiCad battery pack and also has a second internal battery for system clock and settings memory. An AC adapter is provided for powering the machine off standard household current, and for automatically recharging the NiCad battery. (The adapters in all three notebooks reviewed here are quite large and represent one of the areas of "miniaturization" which needs some attention.)

The keyboard on the T1200XE is standard both in type and size (big fingers need not worry). A 2.5-inch, 20 MB hard drive is integrated into the Toshiba. There is one 3.5-inch, 1.44MB floppy drive on the right side. The display is a supertwist side-lit liquid crystal display which supports up to 640 by 480 pixels. The graphics adapter puts out a color CGA signal through the RGB port on the back edge of the machine. There is a parallel port, serial port and expansion port out the back as well.

Options for the T1200XE include up to five megs of RAM, a built-in Hayes-compatible modem, additional battery packs, international keyboards, and an external 5.25-inch floppy drive. The Toshiba, heaviest of the three, weighs in at a hefty 8 pounds.

There are four things which influence the attractiveness of these machines. The first is the weight. The second is the screen, the third is the keyboard and the fourth is the feel of quality/ruggedness. The Toshiba has little to distinguish itself on any of these points.



## Sanyo MBC-17NB

Whereas the Toshiba has a rounded, lozenge-like shape and feel, the Sanyo is more hard-edged and book-like. The depth of the Sanyo (12.5 by 10 by 2 inches) is one inch less than the Toshiba and it weighs one pound less than the Toshiba. The CPU is also an 80C286 running at 12MHz (switchable down to 8MHz). It has one 1.44MB, 3.5-inch floppy drive and a 20MB hard drive. The display, an LCD blue panel with CFL backlighting, can achieve a resolution of 640 by 480 pixels in VGA mode. It also supports CGA, EGA and MDA modes.

Like the Toshiba, the Sanyo also uses a NiCad rechargeable battery pack for DC power, as well as an AC adapter for household current and automatic battery charging. Options for this machine include expansion of RAM to 5MB, a Hayes-compatible 2400-baud modem and a clip-on rechargeable battery pack. The Sanyo runs under the MS-DOS 4.01 operating system.

The Sanyo MBC-17NB is closer to the ideal of a powerful, full-function DOS machine. Again, of the four attractiveness criteria, one criticism would be the feeling of quality/ruggedness. Neither the keyboard nor the casing inspire solidity. The unit doesn't feel as if it could take much of the daily bouncing in and out of a case or briefcase.



## Sharp PC-6220

The PC-6220 is very definitely the most attractive machine of the three reviewed here. Even before taking it out of the soft-shell case, its lighter weight is noticeable. As soon as one picks it up, one notices the feel of a solid, durable, compact device. It is both lighter and smaller and best fits the concept of a "notebook" computer. The shell is squared and it really does appear to be a black notebook. Upon opening the top panel the keyboard layout, power switch, display adjustments and other controls are all on top, clearly visible.

The PC-6220 uses the same 80C286 processor, running at 12MHz. It comes standard with 1MB of memory, which is expandable to 5MB using optional RAM cards. The display is truly a pleasure to work on. It is a triple Supertwist paper-white backlit VGA LCD display. The resolution reaches 640 by 480 pixels. It does not emit any more light than the other displays mentioned in this review, but the paper-white color and the seemingly higher quality of the display make it easier to focus on.

Two things really distinguish this machine from the others: it weighs only 4 pounds, and it's only 1.4 inches thick.

Like the others, it has a 20MB hard drive, serial and parallel ports as well as an expansion port. Its dimensions are 11 by 8.5 by 1.4 inches and it is powered by a NiCad battery pack. A DC adapter is standard. It runs under MS-DOS 4.01.

The only real difference in components is that the PC-6220 does not have a built-in floppy drive (hence the thinness). An external 3.5-inch, 1.44Mb floppy drive snaps into the expansion port in back. The keyboard is a real pleasure to type on; the 79 "step-sculptured" keys have a soft touch and feel. The function keys are half-height across the top of the keyboard, and a numeric keypad snaps onto the right side of the unit.

This machine exudes quality and durability. It can be held in one hand without too much fatigue. The display is rich and cool with little strain on the eyes and the keyboard feels like velvet.

It is obvious that the Sharp is by far the most attractive of the three machines reviewed here. Since all three tend to fall within the $3500 to $4500 price range, the major influence for choice is quality and reliability. Without question, this reviewer became immediately attached to the Sharp.

Daniel Werger provides image scanning services in Vancouver. Contact (604) 736-9624. Special thanks to Canada Portable Computers who provided the Sharp and Sanyo computers for evaluation. Thanks also to Toshiba

CONTINUED FROM PAGE 27

crosoft CEO. "With OLE we make a step toward our vision of 'Information At Your Fingertips' with more powerful capabilities to manipulate information."

Linking is already present in many Windows applications that make use of the DDE protocol, and allows data in one application to be linked to data in another so that if one changes, the other does also. With embedding, the data "remembers" the application that generated it. For instance, clicking on an embedded chart in a word-processing document would call up the original chart data and the application that produced the chart.

The introduction of OLE is seen by many observers as Microsoft's answer to Object Management Facility (OMF), a similar protocol in Hewlett-Packard's NewWave graphical user interface. Since NewWave is basically an extension of Windows, and absence of anything like it in Windows has been a source of annoyance to Windows software developers. OMF differs from OLE in that OMF is handled at the operating system level, while OLE is handled at the application level.

Microsoft's new OLE-related DLLs, available now, will be a standard part of the next Windows release, scheduled for the middle of 1991.

Similar subroutines for OS/2 Presentation Manager, and for Apple Macintosh System 7 (the next version of the Macintosh operating system) are also supposed to be available by the middle of 1991. Contact: Kathryn Hinsch, Microsoft, 206-882-8080.

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LAPTOP COMPUTERS

# The INTRA LT-386SX Laptop

## Portable PC Packs Powerful Punch

*by Graeme Bennett*

**Product:** Intra LT-386SX
**Manufacturer:** Intra, distributed by Omninet Computer Ltd (604) 872-1136
**System Overview:** 386SX LCD laptop computer with 2MB RAM, 1 44MB 3 5" floppy, 41MB hard disk, gray-scale VGA display and battery pack. Ports are provided for connection of optional internal modem and external keyboard, VGA display, second floppy disk drive, serial and parallel devices
**Warranty:** 2 years labor, 1 year parts
**Price:** C$4950

I've seen (more than a few) laptops lately that really weren't designed all that well. Whether they have little plastic covers for the ports that can come off and get lost, feet that don't stand the unit up properly on a lumpy surface (like my desk usually is), or screens that fold back only so far, many laptop computers appear to be designed by people who should probably stick to desktop models instead. Don't these designers think about how people actually *use* portable computers?

### Laptop Guide

Any potential purchaser of a laptop computer should consider the following points in his or her evaluation:



**Size and Weight:** Portables range from the hefty 21 pounds of the NEC Powermate Portable SX (I've also seen the figure 17 lbs. bandied about in some reviews), all the way down to the one-pound palm-sized Atari Portfolio or Poquet PC "hand-helds." The new "notebook" computers such as the Sharp Notebook are less than 5 pounds—a size that may sacrifice such amenities as built-in disk drives or other options.

To be fair, we must compare the Japanese-built Intra LT-386SX (hereafter referred to as "LT") against other machines in its speed, features and CPU class. In a recent issue of *Portable Computing* magazine, all the 386-based portables reviewed were heavier than the LT, which weighs in at about 10 pounds. Compared to an average 12-to-15 lbs. for other 386-based portables, the LT's weight is clearly better than average in its category.

About 12 inches square, and less than 2.5 inches high, it is similar in dimensions to many notebook PCs. An optional carrying case is available, although it will fit handily into a briefcase.

**Display:** Screen quality is important, both in terms of image quality and type of graphics supported. VGA was, in many ways, the great "coming of age" for IBM-compatibles. Now they could match much of the graphical bombast of those "other" computers with their hundreds, thousands or millions of colors. VGA is today's PC standard. Anything less is—by definition—substandard.

The LT comes with a standard VGA grayscale LCD display, and even allows you to plug in an external VGA monitor for up to 800x600 resolution. Best of all, the LCD display tilts all the way back and lays flat to facilitate the use of the external monitor directly behind the laptop. Perhaps because of this, the display is a little smaller than some, measuring 5x7 inches.

Another important factor in LCD displays is the persistence of the image. Especially if you intend on using it with a mouse, trackball or other pointing device, a screen with a slow refresh can cause the pointer to be hidden in a perpetual blur. Included on the LT's utility disk is a software patch that copies the video BIOS into RAM, increasing the LCD update speed substantially.

From various perspectives, the LT's screen appears bluish-gray, -purple, -pink, or -green. At normal viewing angles, though, it approximates black, white and fourteen shades of gray. Unlike many



**Summary**

**Size:** Good
**Weight:** Very good.
**Display:** Good, although somewhat small. Slight interference patterns.
**CPU:** Very good.
**Options:** Excellent. External keyboard and 800x600 VGA display options, easy SIMM RAM upgrades
**Software:** Good.
**Hardware:** Very good, however the floppy drive failed during testing
**Keyboard:** Good, rather shallow key travel. some people may object to the positioning of the cursor keys
**Manual:** Good. Some errors had been whited-out on my review copy; other pages referred to software not included with the system
**Overall value:** Very good

laptops, the background color of the LT's screen is reversable. With its 27 dot pitch display, the LT's screen has good contrast and refresh that most users will find pleasant to look at. I noticed some very slight interference patterns that had the effect of producing the illusion of mild movement in horizontal lines in areas of certain gray-scales, but the effect is neither serious nor distracting.

**CPU:** Like the XT's fell upon arrival of the AT's, now the 286-based machines march inexorably toward their own extinction, destined to be outlived by the 386, 486 and beyond. Whether you like it or not, Windows is a harbinger of things to come.

Just as Excel was one of the first programs to require an AT, now more and more programs have features that only work if you have a 386SX or higher microprocessor. With its 16 MHz 386SX CPU, the LT is an ideal configuration that I can recommend without reservations today and tomorrow.

**Options:** This is where the LT shines. If we ask again the question "How will people actually *use* a portable computer?" we may conclude that they will want to have battery power for on-the-road, and AC for the home/office base. At this base, they'll likely want to have a full-size monitor and perhaps a standard or enhanced keyboard. With most laptops, this means you'll have to buy a desktop system too. Not so with the LT. Just plug in an external keyboard and, as mentioned earlier, an external VGA monitor.

The LT can be expanded with additional RAM beyond its standard 2MB configuration to a maximum of 6MB as simply as adding commonly available SIMMs. Although I didn't try this, from the manual it *looks* easy.

The LT supports RAM shadowing, which copies the contents of the BIOS ROMs into a RAM location for faster access during normal operations. An optional 80387SX may also be added to enhance math operations.

Standard parallel and serial ports are provided, too. There's even an optional internal modem available in two configurations: 2400 baud with 4800 baud send-only fax or 9600 baud send-and-receive fax abilities. Just the thing for you on-the-road types. (Incidentally, the modem slot is the only proprietary connector on the unit—the rest are all industry-standard.) The LT does not have a standard expansion slot.

In addition to the built-in 3.5" 1.44MB floppy drive, the LT sports an internal 41MB hard drive and a connector for an optional 5.25" floppy drive. Extra battery packs are available to extend the system's three-hour battery life.

**Software:** The LT beeps if you close its cover while the power is on. Its BIOS also has an automatic "Stand-by Mode" that causes the computer to slow to 5MHz and blank the screen after a specified time (or not at all). This helps to conserve battery life, as does an included software utility that turns off the hard disk after a set time. Once the disk is turned off, you only have to access the disk to turn it back on.

The LT comes with DOS 4.01 pre-installed on the hard drive, and a disk of several other useful utilities. These include LCD drivers for Windows and OS/2, a utility to configure the VGA display's gray scales and various other diagnostic tools.

**Hardware:** The internal 41 MB hard disk turned in a very respectable 18.5 ms seek time speed in my tests, with a data transfer rate of 614.2 KB/sec, placing it ahead of the drives found in IBM PS/2 models 50 and 80 and the Compaq 386/20 in overall performance.

The LT's overall manufacture seems of good quality. It doesn't look like there are any flimsy pieces that could break off or quickly wear out. The unit comes with a one-year parts warranty, and a two-year warranty on labor.

Unfortunately, in the unit I tested, the floppy drive died during my rigorous testing, and became unable to format or write to floppies. When I called Omninet (posing as a customer), the representative was courteous and offered to look at it right away. Still, this cast a bit of a dark shadow over my enthusiasm for the unit.

**Keyboard:** While not my favorite laptop keyboard, the feel of the LT's 85 keys are quite good, with a shorter-than-average travel. The cursor keys are in the familiar "inverted T" shape, although I


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can't seem to get used to any keyboard that positions them off in the upper corner. This is definitely not an LT-specific problem. The raised dots on the F and J keys are sure to be appreciated by touch-typists, as will the LED indicators for Caps Num and Scroll Lock for the rest of us. Other LEDs indicate the CPU clock speed, drive accesses and low battery status.

**Manuals** Although lines of text on several pages are hidden beneath a coat of white-out, more than anything this is evidence that the manufacturer and/or distributor is at least *trying* to present accurate info. Perhaps they should put a little on page 2-19, where the manual strongly implies that several software packages such as LapLink, Windows and PCFullBak are "provided with your system" that, in fact, are not.

The manual is actually quite good, containing both beginner-friendly info and technical summaries, glossary, upgrade information and instructions for the included diagnostic and utility software. It has a fairly comprehensive table of contents, but no index.

### Conclusion

There are going to be people who will take a four-pound notebook over a 10-pound laptop *no matter here* much more powerful the laptop is, but the LT offers better- than-average performance in several key areas. For those who are looking for a good balance between portability and performance, the Intra LT is worth picking up.

## Bridging the Laptop Gap

*by Nancy Lorimer*

Although the popularity of laptop computers has mushroomed, most available laptops conform to the MS-DOS standard and users of "other" computers have been forced to find ways of bridging the gap between their laptop PCs and their desktop machines.

Owners of newer model Macintoshes have no problem; all current models of Macs can read IBM 3.5-inch disks using Apple File Exchange, which comes with the machines. However, owners of Amigas and older model Macintosh computers have been forced to find other ways to achieve file compatibility. (Atari ST computers can read and write standard 720K IBM diskettes without any additional software or hardware add-ons.)

Transfer methods can be broken down into four main categories: MS-DOS emulation, use of software file readers, posting and then downloading generic text files to bulletin board systems, and use of a device called a "null modem."

**MS-DOS Emulation**

All three computers are capable of MS-DOS emulation, although, in the case of the Amiga, the emulation mode is actually a separate PC-on-a-card which runs in a window from the Amiga.

**CONTINUED ON PAGE 51**


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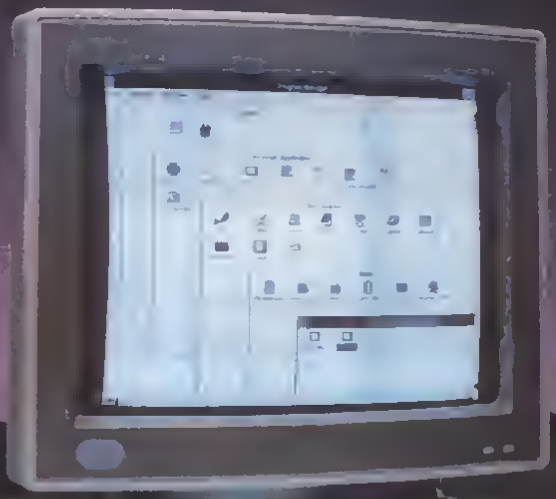
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BUYER'S GUIDE

# Why Your Next Computer Might Be A 386



*by Graeme Bennett*

## Welcome to the Future

As you may surmise from the title, this article is primarily aimed at computer users who are looking to upgrade to a faster, more powerful computer. It is not that 386-based computers are my only recommendation, nor are they the fastest or most powerful. As we shall see, what they *do* offer is a good price/performance ratio for "average" users.

There are, of course, always going to be users with needs that are better served by a different type of computer, usually because they need to run a certain piece of software that only runs on that particular "other" computer. Indeed, there would be no Macintosh, Amiga, Atari or NeXT computers if IBM compatibility was uniformly best-suited for every person.

So many people automatically presume that they *will* buy an IBM compatible, that they never even look at the others. During the course of this article, I will try to show where each type of computer has its greatest strengths, so that readers may make their own informed decisions. At the end is a list that details the areas where I think the various brands are particularly strong.

## A High Standard Of Standardness?

Two obvious attractions of PCs are their low cost and wide selection of software. Regarding the former, it can be argued that a higher-cost, higher-performance system actually represents greater value when subtleties like ease of use and increased productivity are taken into account.

As for the latter, consider that even though IBM compatibles may have ten times the amount of software of any other type of computer, this figure is largely irrelevant to the average buyer, who purchases only a couple of dozen software packages anyway.

More important to the potential computer buyer is the vital question: How do you choose the right system?

Those who regularly read *The Computer Paper* will recognize the wisdom in the words "Choose your software first." This is a lot like saying, "Use the right tool for the job."

Your software programs are the tools that will help you get your job done, and while a screwdriver is a great tool, it's not what you need when you want to pull nails. Other "golden rules" abound, including "wait a year for new technology," coined by John C. Dvorak (author of *Dvorak's PC Crash Course and Survival Guide*, from which we presented an excerpt in the July '90 issue of *The Computer Paper*.)

## DOS Ordeals

There is no question that IBMs and compatibles are more difficult than the others to set up, configure and reconfigure each time an addition is made to the system.

Adding a mouse, second floppy drive or video adapter is vastly more complicated on PCs than other brands, where these operations are essentially *no-brainers*. The reason? PCs have several different varieties of "standard" disks (360K, 720K, 1.2MB, 1.44MB), several video display "standards" (MDA, CGA, Hercules, EGA, VGA etc.), and similarly un-standard mouse standards.

Even once the initial ordeal of setting up the system is done with, PC owners have to accept that virtually every PC program has its own way of doing things. In WordPerfect, it's F7-N-Y to quit, in Lotus 1-2-3 it's slash-Q-Y. In some DOS programs, it's ESC to exit, in others it's CTRL-Q.

Compare this to the Macintosh, for example, where every program opens with the same COMMAND-O and quits with the same COMMAND-Q. Although, of course, each Mac program has its own unique features, file-oriented and editing operations are consistent between applications, allowing a user to intuitively know how an application will behave.

It's almost as if "once you've learned one, you've learned 'em all." This is, of course, why MS Windows is a best-seller for the PC. (You still have to remember that ALT-F-X means QUIT, but at least it's the same for all Windows applications.) Windows promises—and delivers on—ease of use and consistency of commands. Unfortunately, it all-but-demands a fast 386-based machine with 2MB of RAM or more to perform at an accept-


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able speed.

Sure, a 16MHz 386SX might look like it will have better performance than an 8MHz Macintosh Classic, but if you run Windows 3.0 on the 386SX, you'll quickly see that the Mac's windowing environment runs *much* faster. (Graphics performance is even better on Amigas and Ataris, with their built-in graphics accelerator "blitter" chips.) Rather than simply comparing features, try to weigh the performance and ease of use, too.

## CPU Envy

As most computer enthusiasts will agree, it is quite normal for a person's needs to outgrew a first (or even second) computer's capabilities. Many computer users got their start with a "home computer" such as a Commodore 64, Apple II or 8-bit Atari machine.

Frequently, the limited speed, memory and disk capacity are reasons enough to look to a more powerful machine, but the clincher comes when these people spot a computer doing a better job of *what they want a computer to do*. Again, it all comes down to software.

The new machines with oodles of RAM and disk capacity can simply run vastly more sophisticated programs, whether they are games with better graphics, sound and animations, or the latest in word processors replete with as-you-type spelling checking, on-line thesaurus and grammar checking. (I know that was the clincher for me.) The increased productivity and performance are persuasive arguments, indeed.

Other users are first introduced to computers in their office, or other business environment. For these people, the personal productivity improvements of a more powerful machine are obvious as soon as they try their co-worker's computer and it is *much faster*. These people soon come down with what we refer to as "a serious case of CPU envy."

## Fighting the Dragons of Obsolescence

Imagine if you will: that the kingdom is being terrorized by a hungry dragon and you are the heroic knight/knightette that has been appointed to slay it.

The bad-tempered beast comes into town every year on a rampage, bringing ontold grief and misery. Only you, with your magic broadsword, can hold the dragon at bay, and either repel it back into its cave in the mountain, or be vanquished by it.

Unfortunately, each year that you successfully repel it back into its cave, the next year it comes back even hungrier. Will your trusty broadsword save the kingdom *this* time?

Now, let's say that the kingdom is your home or office. We'll call the dragon obsolescence, and we already know who the knight/knightette is. The magic broadsword is, of course, computer technology. Every year, software gets hungrier for more RAM and disk space.

OK, maybe the dragon analogy is a little dumb, but you *do* want to hold obsolescence at bay as long as possible, don't you? (Interestingly, when I told the first part of this parable to a friend of mine, she was convinced that the "dragon" was negative emotions because, of course, if we keep repelling *them*, they come back even stronger later on. But that's another story...)

The best way to avoid obsolescence is to anticipate your future needs. Unfortunately, beginners are often unprepared, both financially and technically, to make the "choice of professionals." Therefore, for those of you that want to test the cold waters of computerdom with a toe, instead of a leap, I'll offer some ways of hedging your bets.

## Decision Time

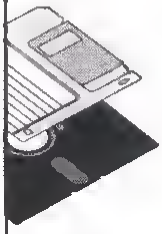
Undoubtedly, the most daunting task required of a would-be computer owner is deciding exactly what to buy. One thing's for certain, though. Once you are in a computer store, the salesperson is going to try to convince you that the products on his or her shelves are the ones you need.

As any sales professional will tell you, a confused customer never buys, so the salesman's strategy is necessarily to sound very, very sure of how his product will solve all the customer's needs. The necessary element that you, as potential customer, must bring to the sale is a concise description of just what those needs are.

I would beware of any salesperson that does not direct his or her enquiries about just what those needs are. More than anything else, that is the service that they must provide.


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COMPUTER PROGRAMMING

# Trilogy: A Language For The Logical

*by Stephen Smith*

**Product** VS Trilogy
**Publisher** Vertical Software Ltd , #14-636 Clyde St , West Vancouver, B C , V7T 1E1, Voice: (604) 925-0321, FAX: (604) 688-8479, BBS (604) 925-4238
**System Requirements** Any IBM PC Compatible with at least 640K of memory and preferably a hard drive
**Price** C$395 00 ($50 discount if you send them your Prolog or LISP disks)
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Trilogy is a programming language based on mathematical logic It contains much of the backtracking and logic features found in Prolog but expands them considerably. Trilogy also contains some of the procedural constructs found in languages such as C and Pascal and contains an integrated program-development system which gives you the ability to edit, compile and run your program easily

Trilogy is very good at solving logic puzzles. For instance, consider the problem.

Some spiders and some beetles are in a box. The box contains forty-six legs. How many spiders and how many beetles are in the box?

In Trilogy we can solve this problem by typing in the query

```
all spiders=L & beetles=L & spiders >
0 & beetles > 0 &
        8 * spiders + 6 * beetles = 46
```

The Result window will then display the two correct solutions (spiders = 2, beetles = 5 and spiders = 5, beetles = 1) along with some statistics on the time the query took. Basically this query says to find all solutions where the number of spiders and beetles are (long) integers and positive, and satisfy the constraint that the number of spider legs is a multiple of 8 plus the number of beetle legs is a multiple of six and altogether they come to 46 If we left out the spiders > 0 & beetles > 0, allowing negative numbers, then we would have gotten an error that there is more than 16384 solutions.

Trilogy has considerable logic to optimize and solve problems of this nature For instance, to solve this problem easily in C we might have written the following (SEE FIG 1)'

This is a much larger program that needs to be compiled, it then solves the problem using brute force examining every possible solution Obviously, if the problem got any more complicated and the number of nested loops increased then it would take an extremely fast computer indeed to solve

As an exercise, spreadsheet users might try solving this problem in their favourite spreadsheet.

Trilogy supports if/then/else and case statements found in C or Pascal. There is no loop-type structure, just recursion, however the compiler optimizes simple tail recursions into loops so that if all you intended to do was loop you don't incur the overhead of recursion Trilogy data types consist of integers, floating point numbers, strings, lists and then structures, unions and arrays built out of these.

Documentation consists of a 280-page user/reference manual and an 80-page library modules guide The manual is quite good and very complete But like with most languages, you have to learn the language by practice and experimentation

Trilogy is, as Mr Spock would say, a "fascinating" language with a lot of innovative features. The package comes with an extensive library with modules for math, graphics, strings, pattern matching, character-based windowing, mouse support and DOS.

The documentation also shows how to set up Assembler and C routines to be called by Trilogy This implementation has a few shortcomings, for instance it has no facility to use expanded or extended memory and hence everything must fit in 640K. Also the programming environment, although fully functional, lacks the slickness of the newer Borland Turbo and Microsoft Quick languages.

For programmers interested in learning more about logic programming, Trilogy is ideal since you can still use some constructs from procedural languages. Trilogy is very well-suited for artificial-intelligence-type applications, where problems are expressed in terms of various constraints and in which there are multiple possible solutions to be considered.

**Stephen Smith** is a software developer in Vancouver, 224-5242

```
main()
{
  long spiders;
/* Number of spiders */
  long beetles;
/* Number of beetles */

  for( spiders = 1; spiders <= 46 /
8; spiders++)
  {
    for( beetles = 1, beetles <= 46 /
6, beetles++)
    {
      if ( beetles * 6 + spiders * 8 ==
46)
      {
        printf("Soln: beetles = %ld
spiders = %ld\n",
          beetles, spiders);
      }
    }
  }
```

*Figure 1. Try solving this one in your spreadsheet.*

## Scenario #1: The Loblaws: A 3-computer Family?

*For the sake of example, let's presume that Mr Loblaw (we'll call him Bob) wants to spend around $3000 for a computer for home, so that he can type letters, play a few games and bring home the occasional job from work—let's say that Bob's office runs Lotus 1-2-3 and WordPerfect 5 1 on IBM PS/2 computers.*

*To complicate the issue, however, Bob's spouse thinks that maybe a Macintosh would be better for the kids, but the two kids want an Amiga and an Atari respectively. What now? Are they all doomed to a nightmare of unhappy compromise? Can Bob really afford three different computers?*

## Recommendation

Remember the Golden Rule? Choose the software first! To do that Bob needs to prioritize his family's needs. Everyone in the family agrees on wanting to print out reports, school assignments and letters. From there, things get a bit tricky

The kids say that "more than anything" they want games with great graphics, sound and a heavy-duty pair of joysticks. Mrs. Loblaw says Macintosh, but really wants an easy-to-use graphical user interface, a user-friendly word processor and some (ahem) worthwhile educational software; and our friend Bob wants Lotus 1-2-3 and WP 5.1

People often confuse what they want with a particular product that seems to epitomize those characteristics. Unfortunately, with computers, as with much of life itself, things are rarely that clear-cut.

Let's examine the facts: The Loblaws have $3000 to spend. Let's get the software picked and paid for first. Bob wants to do word processing with WP 5 1 ($280) and spreadsheets with Lotus 1-2-3 ($400). Although some people might be inclined to copy the office's software for their home, I am obliged to point out that this practise is both immoral and illegal.

(Depending how adventurous Bob is, he might want to consider an alternative spreadsheet for his home system Microsoft Excel, Borland's Quattro Pro and Informix's Wingz are all similar enough to 1-2-3 that a Lotus user can rapidly learn the new software. Each can all use files created by 1-2-3, and all offer significant enhancements in various areas. Quattro Pro is a great price, too.)

Mrs Loblaw wants a mouse and a graphical environment. Let's get her a Microsoft serial mouse and Windows 3 0 ($150). Some people prefer the Logitech mouse, but I find the larger left button on the Microsoft model easier to press and more comfortable in my hand. (Well, Mrs. L., which one do you like?)

The kids want a couple of games ($50 each) and they will just love learning their history lessons with *Where in Time is Carmen Santiago* ($60) An add-on sound card called SoundBlaster will add realistic sound effects and speech to the three games they've chosen for $250. Total software and goodies cost. $1220 That leaves about $1800 for the actual computer hardware For that amount, they can get a 16 MHz 386SX computer with a 40MB hard drive, VGA color monitor and 9-pin printer (I'm basing these figures on typical prices found in a current issue of *The Computer Paper*.) Why not just get an AT or—shudder—a PC/XT computer? Lots of reasons, but for starters, one of the great features of Windows 3 0 called *Virtual Memory* doesn't work on these models. It requires a minimum of a 386SX-class computer. The additional $300 or so it costs to move up from an AT to one of these as money well-spent in fighting that dragon If the family could afford a few hundred dollars more, I wouldn't hesitate to recommend a better printer, such as the wonderful Canon BJ10e Bubble-Jet unit.



If still more money could be spent, I would recommend a better monitor with a smaller "dot pitch." More on that later.. Stay tuned while we look at another case history

## Scenario #2: The Best Better

*Johnny is having a little trouble with arithmetic and spelling at school. The teacher suggests that perhaps some home study is needed, and tells Mom and Dad that Johnny really seems to like using the Apple IIe computer at the school. Should Mom and Dad spring for a home computer? If so, which kind?*

## Recommendation

Unfortunately, when Mom and Dad go looking for an Apple IIe computer just like the one at the school, they'll probably find that none of the stores in town have any.

It's just as well, because the IIe is a very old design that has some significant memory limitations compared with most of today's computers (These limitations stand for any 8-bit computer, a sizable list which includes but is not limited to the Commodore VIC-20, C64 and C128, Atari 400, 800, 800XL, 1200XL, 64XE and 130XEC, Apple II, II+, IIe, IIc and compatibles. As much fun as they were back in the early-to-mid '80s, you have my standing recommendation *not* to build a system for the '90s based on an 8-bit processor You are forewarned!)

If Mom and Dad do decide to "go Apple " they have three basic choices: look in the classifieds for a used Apple II-series computer ($300-500), get an Apple IIgs ($1500-$2000) or a new Macintosh LC with Apple IIe compatibility card ($3500 or so)

Obviously buying a 10 year-old used computer is fraught with peril, so I don't recommend the first option unless the family can locate a friend who is an Apple II expert that can help them make the purchase and set it up for them The Apple IIgs option is only marginally more desirable, as the IIgs is—at the prices above—underpowered and overpriced compared with other available brands, although it hasn't got limitations nearly as severe as the 8-bit systems listed above.

The IIgs, even though it features good graphics and sound capabilities, suffers from what I call the "lowest common denominator" problem, which occurs in varying degrees with all computers. Because the IIgs is compatible with earlier Apple II software that did not utilize its enhanced graphics and sound, much of the software that runs on the IIgs doesn't

take advantage of its features. Indeed, as Steve Jobs once said "standards are the cure my of innovation."

However, the IIgs is much faster and newer than the IIe, and with the right software, can more-than-adequately meet Johnny's present needs. It is likely, however, that in a few years, that Johnny will want a different type of computer, because Apple II series computers are—whether Apple II enthusiasts like it or not—near the end of their evolutionary life cycle. Software and hardware development for them has all but slowed to a trickle, and most schools are upgrading to either Macintosh or IBM-compatible computers.

Unfortunately, there is currently no method of adapting an IBM-compatible to run Apple II software (but it is possible to purchase an Apple II compatibility option from IBM—of all places—for use in their PS/2 line of computers). This may be an avenue worth considering, but I don't think a PS/2 machine would be the best choice for the child, especially if he will be doing schoolwork at home. This is because the IBM board requires that the user first run a utility that converts the Apple II's ProDOS files to PC-DOS files that "look like" ProDOS files to the board. In contrast Apple's solution can run real ProDOS files simply by inserting an Apple II 3.5" disk into the Mac's internal drive, or connecting an Apple II 5.25" floppy to the card.

## Big Blue Blues

In general, I don't recommend IBM's PS/2 machines because they are equipped with an incompatible slot design called Microchannel Architecture, making them incompatible with widely-available add-on cards for "IBM compatibles." Strange, isn't it?

IBM's heavily-advertised new home offering, the PS/1 also falls into my disfavor for similar reasons. Basically, the PS/1 is a mediocre AT-compatible with limited expansion options and a proprietary slot design. In short, a somewhat overpriced under-performer.

In summary, this family will be best served by an Apple computer, primarily because the child needs to be able to run Apple II software. Which model they choose depends on their budget. The three options have widely different price ranges.

The most expensive one, the new Macintosh LC with IIe option card, is the one with the biggest benefits. Admittedly expensive compared to the other options, it does provide for the child's current and future needs, and provides a good general purpose computer.

## Scenario #3: The Home Publisher

*Here's Jane. An art school grad, she's now an aspiring entrepreneur with an eye for design. She wants to start her own business as a graphic design studio, using a computer to create business cards, letterheads and brochures. She's got about $5000 to invest in her new venture. Should she listen to her TV producer boyfriend, who tells her that Amigas are the best for graphics?*

## Recommendation

Jane should get a PostScript printer and compatible illustration software. Why? Because no self-respecting DTP'er will argue that PostScript is, at least for the time being, the professional choice. So, assuming that Jane's system includes at least a low-to-mid-range PostScript laser printer (I'll pick the highly-rated QMS PS-410, although several other models are in the $2000 price range), she only has $2000-3000 left to buy a computer, hard disk and software.

Although she could take her boyfriend's suggestion, it would not be my choice unless her other primary use of the computer was to create video titles, animations or 3D renderings (a few areas the Amiga is very strong in).

A hard drive-equipped, expanded-to-2MB Amiga 500 system (about $2200) can indeed be used to create credible published graphics, but most users will find that computer's 640x400 interlaced display an annoyance. An add-on device from Commodore called the A2320 de-interlacer, designed to counter these Amiga high-res jitters, requires an Amiga 2000 or one of the newer models which similarly equipped, start at about $3500.

Ironically, this flicker is a side effect of the very attribute that endears the Amiga to Jane's TV-producer boyfriend. The Amiga's interlaced video output is well-suited for output to VCRs and other video recording equipment. In short, the Amiga makes a damn fine cup of TV, but is out of our price range for DTP.

Interlace problems aside, the Amiga is lacking in good-quality DTP and PostScript drawing programs compared with PCs or Macs. (Yes, outraged Amiga fans, I know about Professional Page, Professional Draw and the Compugraphic font library.) Additionally, the DTP programs that do exist for the Amiga are painfully sluggish to use with the slow 7.16 MHz clock speed of a standard Amiga 500, 1000, 1500 or 2000. I have used Amigas for DTP, and have not been satisfied with the results.

Jane could get a Macintosh Classic (at 7.16 MHz, it is too slow for any serious desktop publishing) with a 40MB hard drive for around $2000, and spend what's

**Continued on Page 50**


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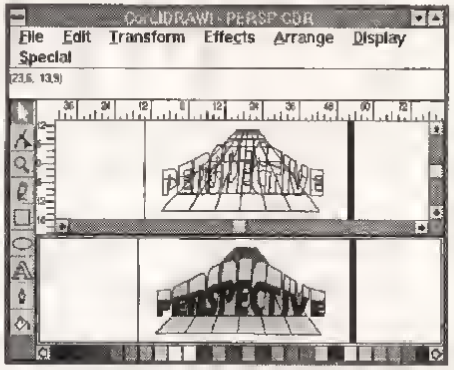
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## DESKTOP PUBLISHING

# Corel Draw 2.0




*Corel Draw 2.0 includes new screen features and improved illustration controls.*

*by Nelson Ruest*

Two years ago, when Corel Systems first introduced Corel Draw, we thought it was the best and most comprehensive illustration program for microcomputers. Today, our opinion hasn't changed. If anything, it has been heightened by the release of Corel Draw 2.0.

Draw version 1.0 was chock-full of comprehensive features—nearly 100 typefaces, all editable on a point-by-point basis, 50 PostScript fills, automatic and again editable, an interface well designed to take advantage of Windows; simple but comprehensive tool selection; and more. . . Draw 2.0 improves both the selection of features as well as the overall operation of the program. Here's a closer look.

### Special Effects

Corel Draw 2.0 boasts a new "effects" menu which lets you perform many operations in single steps. You can envelope objects such as type inside other objects of various shapes. In ample, step-by-step processes, you can fit a word to a given shape by modifying its "envelope"—from distortion of text to making text look like it is spiraling down a drain.

You can extrude objects to quickly create three-dimensional effects. You have new controls over perspective and vanishing points. Perspective wraps the object inside a shape box, letting you reform the object to the shape you desire. Vanishing point is used to give the illusion that the object appears to start from a distance and is getting closer. Each of these features provides easy access to some of the more complex illustrative techniques in the industry.

As in Illustrator 88 (Macintosh), you can blend one object into another, determining the number of intervening steps. A new fill feature lets you create customized Bitmap or Vector patterns giving a unique quality to your illustrations. All of the above features together would qualify to make Corel Draw 2.0 a major enhancement over version 1.0, but that's not all you get by far with Corel's new illustration tools.

### Better Text Control

A new Symbol or Typeface export feature lets you create your very own special characters or customized typefaces as Corel Draw illustrations, then export them as fonts for use within your Corel Draw designs. Add this to the new typeface conversion feature of Corel's WFNBOSS program and you can export these new fonts to Adobe Type 1 format, letting you use your own fonts in any program on your desktop.

Text extraction and merge back lets you pull text out of your Corel Draw -

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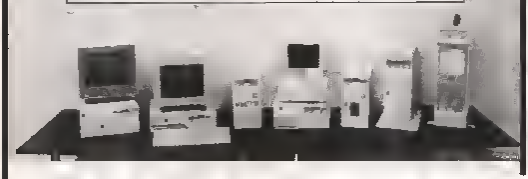
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ings, place it in a word processor of your choice to perform major edits, then replace it within your illustration. This feature also lets you perform Print Merges, to customize each printed piece of art to its intended recipient.

Corel now boasts an additional 51 fonts to give you an even broader choice of typefaces in your designs. Along with fitting text to any path, you can now fit text to shapes, creating unique special effects (for example, fit the word "round" to a circle shape). Corel's limitation to 256 characters in one text block is now a thing of the past. The upper limit has yet to be found.

All of these text features make CorelDraw a most valuable addition to any desktop publisher's library of software. But there's still more. . .

### Improved Interface

CorelDraw 2.0 takes full advantage of Windows 3.0's 3-D interface. Corel's screen includes "button" tools and selections as well as several new features. At the bottom, you now have a user-definable color palette making color selection quick and simple. Colors can now be defined through Hue, Saturation and Chroma; the Red, Green, Blue (RGB) system—used to display color on monitors—as well as its previous Pantone or CMYK systems.

An improved status has lists cursor position—in points—as well as object size and position, object type, and fill and outline values. User-definable grids are displayed on screen as dot patterns. Rulers are used to draw guidelines and re-origin the zero point just as in PageMaker. Previews can take up the full screen if desired as well as display a simulacrum of PostScript pattern fills—gone are the multitude of PSs used in previous versions.

User preferences include the ability to program the second mouse button to operate as another tool or to zoom into your drawing and more. You can also program the line-drawing tool to operate as a freehand pen as before or create bézier curves, a vast improvement in precision drawing control.




*An improved Node Edit menu.*

Nodes can be converted to lines or curves, joined, edited or broken or even moved to precise locations. Objects can be stretched or scaled from centre points or "nudged" to precise positions. Objects can also be seen when being moved, which helps in moving them only once to get them to the right position.

### Improved Operation

Despite all these new features, Draw 2.0 is in many ways faster than it was before. Users can interrupt redrawing of the screen image, avoiding the sometimes interminable waits incurred in Draw 1.0. File selection includes an image preview, making sure you get the right drawing when you open a file. (This is a function of version 2.0. Old drawings will not preview until they have been opened and saved.)

You can turn on an auto-Save feature, avoiding time-consuming Save procedures and making sure Draw always saves your changes automatically. Printing is improved on HP LaserJets through a new rasterizing feature giving better type on non-PostScript printers. (Users who want to improve HP LaserJet printing speed from Windows should also get Microsoft's Supplemental Driver Library. It provides up to 50% faster LaserJet printing; $15 from Microsoft). A new printing message box now lists which objects are being sent to the printer, giving you a visual indicator of the time it takes to print.

### Additional Tools & Utilities

CorelDraw has always offered excellent value for your money through the additional tools provided with the program itself. Again this has been improved. Draw now includes a better organized and enhanced clip-art collection containing over 750 drawings in 14 categories. It also boasts more than 3,000 symbols in 36 categories—a library you can enhance with your own symbols.

Additional utilities include CorelTrace to automatically convert scanned images to CorelDraw outline format.

WFNBOSS, Corel's font-conversion utility, lets you import almost any manufacturer's typefaces into CorelDraw and export any CorelDraw font to Adobe Type 1 format. This lets you use *all* of CorelDraw's 150 fonts in any other DTP program. Mosaic, a new tool, lets you convert drawing collections to libraries, compress files to save disk space, and select drawings visually.

### Conclusion

The features listed above are by no means a comprehensive description of Draw 2.0's new features. Its enhancements cover a much broader range than can be described here. For previous owners of Corel, $125 for this upgrade is more than worth it. For publishers new to the desktop, CorelDraw 2.0 offers you a selection of illustration tools which could easily cost over $2,000 elsewhere. How can they do it? Only through continued support by us, their user base.

CorelDraw is by *far* the best and most comprehensive illustration program *anywhere*. Nothing rivals its features on the Macintosh and nothing even comes close on the PC. Frankly, this program is so complete, that I feel sorry for Corel's competitors. They've got a long way to go to catch up.

Nelson Ruest is a publishing consultant with Resolutions Enterprises, a firm which specializes in implementing corporate communications through desktop publishing. Resolutions also publishes *Resolutions Guide for Corporate Publishing* on a quarterly basis. He can be reached at (604) 683-1599.

DESKTOP PUBLISHING

# Ventura For The Mac

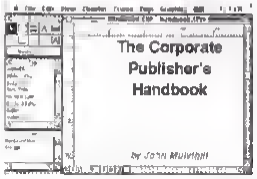
## The Long-Document Master Comes To The Macintosh

*by Nelson Ruest*

Ventura Publisher has long been a favorite among PC publishers.

Unlike PageMaker or Quark XPress, both of which focus on interactive layout, Ventura offers publishers the means to automate document production. Oh, you can still operate Ventura completely interactively as many users do, but because Ventura maintains a "live" relationship with original text and graphic files (not copying them as is most often done with PageMaker and XPress, but simply *displaying* the original file), documents can always be updated in word processors.

Advanced users can even apply predefined formats to paragraphs to automatically typeset text once opened in Ventura. With a powerful word processor such as Microsoft Word you can even store Ventura "tags" as glossary entries.




*Ventura on the Macintosh—something many of us never expected to see!*

In an unprecedented move to maintain consistency across publishing platforms Ventura Software (a division of Xerox Corp.) has just released Ventura Publisher for the Macintosh. Operating in much the same way as Ventura for the PC (either Windows, GEM or OS/2), XVP Mac lets users finally produce complex technical documentation on their Macs.

Because of its implementation methodology, Ventura's major use is for long, consistent documents. Like Quark XPress, Ventura's operation is frame-based. The original frame—created automatically each time you make a new publication—is automatic. This means that it automatically expands to contain text of *any* length, whether it be one or 100 pages.

And because Ventura typesets text through comprehensive style sheets, 90% of this text becomes automatically typeset *as soon as it is loaded into your document!* This is because Ventura automatically assigns the style Body Text to all text imported. Since in most publications, 90% of the text is body text, 90% of your publication is typeset as soon as you set up the parameters for Body Text.

These features have made Ventura Publisher a favorite among the technical writing community, but it is also for anyone who puts together books, manuals, magazines—anything with consistent, numbered pages. In many ways, it remains the most powerful page make-up program available on micro-computers, and also the most difficult to master.

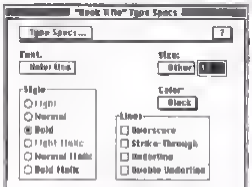
While not recommended for casual users, Ventura gives professional desktop publishers the tools they need to meet the most demanding requirements in document design, line art placement, and typesetting.

Ventura's Macintosh version is part of Ventura Software's *Gold Series*, "Gold" meaning that Ventura now includes the standard program plus both the *Professional Extension* (including a table editor, new hyphenation dictionaries and scientific formula editor) and the *Network Version* (allowing Ventura to operate on networks).

Ventura operates through the use of a comprehensive toolbox. While choosing the proper tool for the job is not absolutely essential in other software programs, it is in Ventura. Here each tool is linked to particular menus.

The pointer tool gives you control over frames and graphics through the Frame and Graphic menus. The Paragraph tool lets you typeset text in whole paragraph units. The Text tool controls individual character attributes through the Text menu.

In addition, the toolbox includes a Frame Addition tool, Rectangle, Rounded-Corner and Circle creation tools, Boxed Text and Line creation tools, making it easy to remember which action you are performing.




*Each feature of a paragraph tag can be typeset without returning to the menu through a new button at the top left of the dialogue box.*

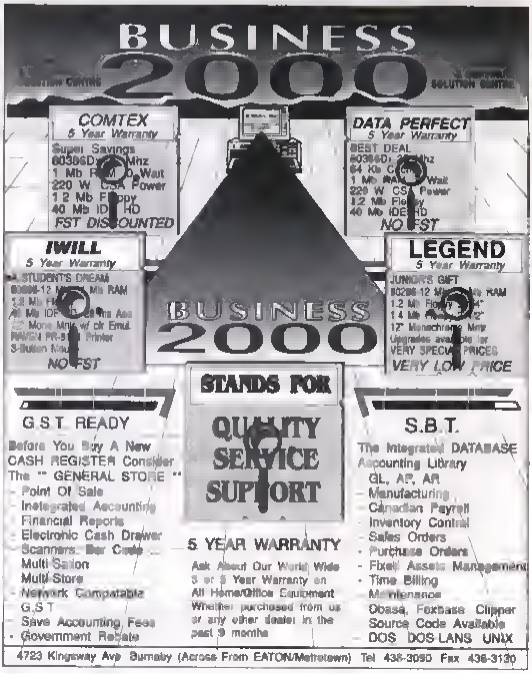
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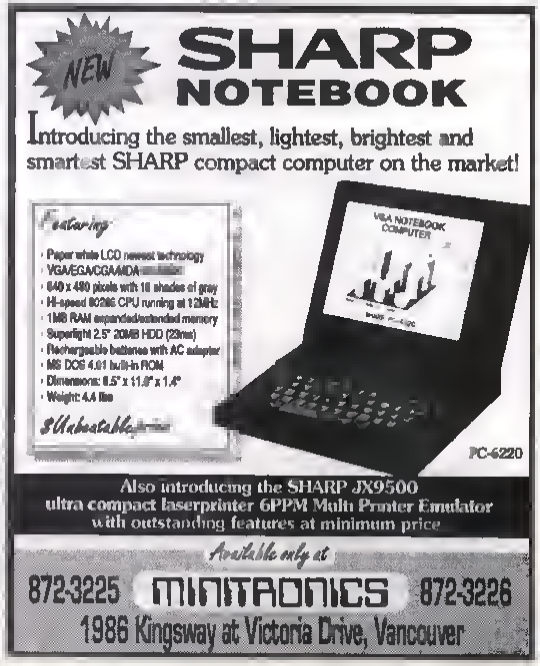
In Ventura, Style Sheets are separate documents. This makes it much easier than any other program to quickly perform "what-if" publishing situations. Simply load another style sheet.

Two or more style sheets can contain vastly different layouts such as number of columns, different fonts and sizes, new margins or even completely different page setups. Again, something unavailable elsewhere.

Paragraphs can automatically be numbered in a variety of forms: legal, roman, alphabetical or numeric. Since this is done through the paragraph styles attached to text, this feature can update single-page documents just as easily as hundred-page documents.

The Table of Contents can also be generated through paragraph tags. And, unlike most other programs, the Table of Contents entries are completely user-definable. Ventura also produces Indices based on user entries. A comprehensive spell-checker lets you control the content of your document up to the final stages of publishing.



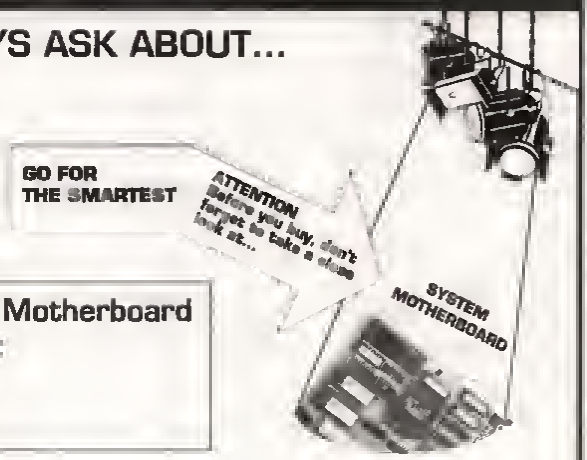



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Ventura for the Macintosh adds another final flair: complete Macintosh-PC compatibility within documents. Any publishing environment using both platforms can quickly and easily transfer files back and forth.

Ventura's power does take time to harness. Its file-management system can be complex. Because of Ventura's "live link" to text and graphic files, it often becomes easiest to copy all contents into the same folder *before* publishing through Ventura.

More than perhaps any other page-layout program, Ventura requires operator training. Learning this formidable program should be undertaken in manageable doses. With instruction and practice, though, Ventura's approach to building documents begins to make more and more sense. An experienced Ventura operator can put together a large document with amazing speed—to standards that would impress a union typesetting shop.

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Ventura for the Macintosh retails for $945 and requires a Mac SE or higher with 2 MB of RAM and a 20 MB hard disk.

**Nelson Ruest** is a publishing consultant with Resolutions Enterprises, a firm which specializes in implementing corporate communications through desktop publishing. Resolutions also publishes *Resolutions Guide for Corporate Publishing* on a quarterly basis. He can be reached at (604) 683-1599.

GRAPHICAL USER INTERFACE

# Competition for Windows

## PC/GEOS GeoWorks Ensemble





*by Graeme Bennett*

**Product:** GeoWorks Ensemble 1.0
**Publisher:** GeoWorks, 2150 Shattuck Ave., Berkeley, CA 94704 (415) 644-0883
**System Requirements:** Any PC, XT, AT, 386 or 486 with 512K of RAM, mouse, graphic display and hard disk
**Price:** US$195

PC/GEOS Geoworks Ensemble is a Graphical User Interface (GUI) and a suite of productivity software from GeoWorks, a company once known as Berkeley SoftWorks.

The name PC/GEOS will be recognized by many because of a program released a few years ago before the term GUI was fashionable. PC/GEOS (Graphical Environment Operating System) is said to have an installed base of two million legitimate users worldwide, primarily due to Commodore's canny move of bundling it with their 64C computer (an Apple II version was also released). This huge user base is said to have generated more than US$20,000,000 in revenues for the company.

Now, a more powerful PC version dubbed PC/GEOS looks like it might be able to take some of the market share away from that "other" GUI for the PC, Windows.

The timing is certainly right. In their December issue, *PC World* states, "We admit it. We're a little Windows-happy." *A little?* The members of the PC press are falling all over themselves in their rush to embrace Windows 3.0. I pity the poor DOS stalwarts that hate Windows, Icons, Mice and Pointers (think about those initials for a moment!). But does PC/GEOS stand a chance?

### Hello, Up There

Will the mighty giant Microsoft even notice the tiny breeze created by all the flapping over PC/GEOS? Probably not, but plenty of users will. Why? In case you hadn't noticed, Windows is S-L-O-W on anything but a 386. It isn't even too good

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on the 16MHz 386SX I'm testing it on right now. About all that be said for its performance on a 286 is that it runs.

PC/GEOS, on the other hand, *flies*. It even performs respectably on an old 8088-based XT. The speed of PC/GEOS is a credit to the programmers at GeoWorks, who wrote the whole thing in assembly language. The multitasking kernel of PC/GEOS occupies only 55K of RAM and sits on top of MS-DOS.

If a user runs a "normal" DOS program, PC/GEOS shuts down temporarily, and reactivates upon exit. PC/GEOS can use regular, extended or expanded RAM, and can even modify its configuration to make use of an extended memory manager.

There is a massive potential user base for PC/GEOS that can't (or shouldn't) run Windows. All of the years we've been listening to Microsoft's line about how difficult it is to build a windowing environment for the PC, and suddenly a tiny upstart shows them how it's done. Take that, mighty giant!

## What You Get

Inside the package are both 5.25" and 3.5" disks, an inch-thick manual, Customer Support Handbook, a Quick Start Guide and not one but two troubleshooting guides. The package also includes free online time for *Americа Online* — a graphical telecommunications service previously only available to Macintosh users. *Americа Online* is one of the few online services to offer news, electronic mail, and access to software libraries and various information services with a graphical user interface similar to other PC/GEOS (or Macintosh) applications.

Interestingly, the *Americа Online* brochure describes the included telecom software as a "pre-release version" (when I examined the included *Americа Online* software, I found the HELP files labelled "under construction"). A coupon in the package, however, promises a free upgrade to the final version when it's available.

## Setup

It's not hard to get started. Disk #1 is labelled "Type SETUP and press ENTER." That's about all most users will need to figure the rest out.

Setup installs the various components of the non-copy-protected program onto your hard drive. Setup is a great example of dummy-proof programming, indicating the percentage of the operation that is complete, how to cancel the operation and what is being performed.

Once the GeoWorks installation is complete, the program prompts you through the final stages of the setup procedure, where mouse and video card choices are made. PC/GEOS was smart enough to figure out that I had a VGA card installed in the 386SX that I performed these tests on, and defaulted to it. After stepping through a few other screens for choosing and testing a printer, the installation was complete.

When PC/GEOS starts up for the first time, it prompts you to type in the serial number from the inside front cover of the manual. Presumably to register each unique copy for customer support and software update purposes, this is a vast improvement over the heavily copy-protected 64C version of PC/GEOS.

## Look and Feel

PC/GEOS has a clearly superior user interface over Microsoft Windows 3.0. It's also faster, better-looking, and requires much less RAM and disk space. More importantly, it's smarter. As an example, look at the way that Windows unnecessarily alarms you with the message "Are you sure that you want to format the disk in drive A:?" in the dialog *before* you are given one last chance to stop the format operation. After you've answered, "Yes, I'm sure," Windows pesters you with the equivalent of, "...are you really, really sure?"

By comparison, PC/GEOS uses subtle audio cues to alert you when an error occurs (such as trying to look at the directory of an unformatted disk), and allows you to choose the capacity of the disk to be formatted. Where Windows only shows a high-density check-box, and therefore supposedly applies low density when it is unchecked, PC/GEOS does what a user interface *should* do, and that is to make things clearer.

Right there in the dialog, you choose from explicit entries: "1.44M (Requires High Density Diskette)" or "720K (Low Density)." This is just the kind of information that might save a lot of hair-pulling by casual users.

There are plenty of other examples of smart thinking, such as PC/GEOS' 32-character file-name length (unlike the DOS- or Windows-imposed 8-plus-three character limit); or the fact that PC/GEOS actually uses *both* of the buttons on your Microsoft mouse (the right button is used for selecting files for moving or copying). Plenty of smart shortcuts are available, too, such as holding down the CTRL key to do a COPY instead of a MOVE.

Like Windows, PC/GEOS allows you to change the size of windows by grabbing anywhere along any perimeter. Grabbing any corner allows you to reshape the aspect ratio of the window. A dot in the upper right corner allows a window to be shrunk to an icon along the bottom of the screen (an operation also available via ALT-F9, much like Windows' Minimize function). At the top of each window is an icon of a push pin, which "tears off" the menu, allowing you to position it anywhere on the screen.

Menus can be invoked the same way they are in MS Windows (e.g., ALT-F drops down the File menu), and menus may have hierarchical sub-menus that pop out of the side when the user moves the pointer over any arrow at the edge of the menu. Good user interface design is evident here, with such standard fare as the ellipsis (...) shown on those menu selections that bring up a further "continue or cancel" dialog box.

The scroll bars at the window edges, too, are well-designed, growing in length when there is less "hidden window area." Although Digital Research's GEM has long featured this clever visual cue, the system software engineers at Microsoft's Windows and Apple's Macintosh divisions could learn a few things here.

An interesting innovation in the "look and feel" of the PC/GEOS dialog boxes is the way that the mouse pointer turns into a "don't do this" circle-and-bar symbol when you move it outside the correct area. Also, the default button (e.g., OK or CANCEL) is highlighted as a visual cue for those who prefer to press ENTER to make a selection.

The user interface sports a bevelled 3-D look that, according to GeoWorks, is

"certified compliant with OSF/Motif, an industry standard interface developed by the Open Software Foundation of Cambridge, Massachusetts." To those who don't know or care what that means, it means a resemblance in appearance to various high-end UNIX-based workstations (all in all, not a bad thing to resemble). It reminds me of a blend of Windows 3.0 and NeXTStep.

The PC/GEOS "welcome screen" features three large graphical icons, labelled Appliances (GeoSpeak for what Mac users call Desk Accessories), Professional, and DOS programs. Clicking on the first reveals a calculator, notepad, planner, banner printer and RoloDex-type index system called GeoDex.

Oh, yes and the obligatory Solitaire game. In the PC/GEOS Quick Start manual, it calls these appliances "the equivalent of the toaster sitting in your kitchen—small, simple, basic."

Clicking on Professional for the first time brings up the prompt, "You're about to enter the Professional Workspace where you can use advanced applications. You may want to have your User's Guide Handy. Are you sure you want to enter the Professional Workspace?" Gulp. I'm not so sure anymore, but here goes. *Geronimo!* (Incidentally, this dialog is seen only the first time you run the program. Nice touch.)

The DOS option brings you face to face with the ubiquitous C> prompt. It also allows you to assign various icons to your DOS programs from a selection of images included with PC/GEOS. The Button Settings option also allows a parameter to be passed to the application, either by asking for options each time (useful for filenames, for example), or by specifying options to be unconditionally specified. Batch files may also be created and edited in PC/GEOS' friendly graphical environment.

## Online Help

Additional icons for HELP and EXIT are found in the top corners of the screen. Choosing HELP gives a concise description of the various functions. I really can't imagine anyone having any difficulties here. This is the very picture of smooth sailing.

## GeoManager

Only the most timid users are not going to bypass the appliance mode and enter the "Professional Workspace" called GeoManager. In this area, icons represent the various programs, much like the display of the Macintosh's Finder or Windows' Program Manager. However, unlike Windows, which uses a separate File Manager application to manage files, PC/GEOS' GeoManager also allows disks to be formatted and copied, directories to be created, and files sorted, copied, moved and deleted. File attributes such as Read-only, Archive, Hidden or System can also be set.

In GeoManager, applications and their document files can be viewed as icons, names, or names and details. Because PC/GEOS is a multitasking environment, there are several ways of running programs. You can double-click on an application's icon, or double-click on a document icon, and it will open the program that created it, and display it. Another way to move from one open window to another is by choosing its name from the Express menu that appears in each application.

## GeoWrite

GeoWrite features a decent selection of the features one would expect from an entry-level WYSIWYG word processor, and a few surprises, too. GeoWrite includes headers, footers, columns, justification, variable line spacing (leading), custom borders, table creation, halftone and color. Object-oriented graphics created in GeoDraw and saved in the Clipboard or Scrapbook may be pasted into the text.

PC/GEOS appears to use Macintosh fonts, which is not too surprising, as this was something that their Commodore 64 version did, too. Even the special keyboard characters like bullets, copyright symbols and the like are accessed in a way that will be familiar to Mac users, with the PC keyboard's CTRL-ALT keys substituting for the Mac keyboard's OPTION key. But the surprise is that the SIZES menu lets you create characters up to 792 points (a full page) high *without "jaggies."*

## Imaging Engine

Yes! PC/GEOS uses outline font technology for both screen and printer output. With its use of a unified imaging engine for both screen and printer, any PC/GEOS application will output crisp text and graphics at the highest resolution supported by the screen, dot matrix, ink-jet or laser printer. The fold-out cover of the package shows several stunning examples of GeoWorks Ensemble's printed output. When you read the fine print you discover that they were all created on a 9-pin dot matrix printer. Wow!

(For those interested in such matters, PC/GEOS uses a scalable fonts manager called Nimbus Q from Digital Typeface Corp., and comes with nine typefaces from URW.) If you want to print 24-point Cooper Black at a 15-degree angle, it'll look the same on your screen as it does on your printer. The font manager is available to every application that wants to use it.

## GeoDraw

GeoDraw is an adequate, though unspectacular full-color object-oriented graphics application with the ability to import bitmaps in either TIFF or PCX formats. Thus, combined with its scalable fonts and text-handling features makes GeoDraw quite appropriate for single-page DTP tasks. Several sample files of this nature accompany the program, including a multi-column business report, restaurant menu, and a few different types of newsletter layouts.

I discovered a trick not mentioned in the manual that allows you to import your own TIFF picture as a background for the PC/GEOS windows. Just import the TIFF bitmap into GeoDraw and copy it to the Clipboard. Then, in the Preferences option called Background, choose "Get Background from Clipboard..." and apply the image to use the new background!

## GeoPlanner and GeoDex

The GeoPlanner calendar/appointment book and GeoDex card file exhibit PC/GEOS' dynamic data linking capability. If you wish to call someone to verify an appointment listed in GeoPlanner,


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you can highlight that person's name and, by selecting a menu option, GeoPlanner sends a message to GenDex, which looks up and displays the person's phone number. This "dynamic data exchange" capability is the cornerstone of Microsoft's OS/2 strategies, and is promised, but not yet available as part of Macintosh's System 7.0 operating system.

## Notepad

The Notepad is a mini text processor that keeps its contents as standard ASCII files. It might be useful for editing batch files or keeping short notes.

## GeoComm

In addition to the previously-mentioned *America Online* software, the package includes yet another telecommunications utility, dubbed GeoComm. The program offers industry-standard Xmodem protocols and automated logon scripts and a scroll-back buffer that makes it easy to save data to disk or cut and paste it into any other PC/GEOS application.

## Banner

The Banner appliance is a perfectly simple and elegant program that explodes PC/GEOS' scalable fonts to great effect. Just type in a message, and the on-screen display shows a realistic representation of a horizontal length of standard tractor-feed fan-fold paper with your text emblazoned on it.

Various font choices can be made (it was here that I first noticed the "inside joke" that PC/GEOS' version of Park Avenue script is called "Shattuck Avenue—obviously named after GeoWorks' own address), and a variety of special effects like shadows, borders and 3-D effects can be added, too. Banners can be a single or double sheet wide and any length. And like all PC/GEOS applications, the printing (while slow) is of spectacular quality.

## What's Missing?

PC/GEOS lacks a macro processor, making it impossible for users to assign their own command keys. According to GeoWorks' Vice President Lee Llevano, a macro language is "on the drawing board." Fortunately, like Windows, virtually all PC/GEOS menu commands can be accessed by TAB, cursor or ALT-key commands anyway, so the omission is not crippling. (A notable exception is the GeoManager display, where—as far as I can tell—there is no way to select or launch a file without using the mouse. There's always DOS, I suppose.)

About all I can find to complain about is the fact that neither the word processor GeoWrite nor the drawing program GeoDraw have an UNDO function, even though UNDO is available from the EDIT menu of most of the smaller PC/GEOS applications.

This is not quite as serious as it might appear. The manual explains that you don't actually have to save your document while you're working on it. PC/GEOS programs automatically save your data as you go. In the event of a power failure or other problem, your work isn't lost even if you haven't saved it.

In a Preferences control panel, you are given the option to set the interval for "Document Safeguarding." Set to one minute, you're not going to lose too much work. Other parameters, such as the default font size, sound on or off, and startup application are also made here in the Preferences panel.

If PC/GEOS is shut down without quitting back to DOS, the next time it is started up, it will advise you that resetting the program may be necessary. This procedure takes only a second, as it automatically closes and re-opens its temporary "Safeguard" files. If instead you need to recover your work after an accidental shutdown, just use the OPEN dialog, and look for a file called UNTITLED.

## Conclusion

I cannot find a single bug in PC/GEOS or any of the bundled programs in GeoWorks Ensemble. That is, I suppose, the highest plaudits one can give any program. With its bundled applications (easily worth the price alone), the package is an excellent value, and certainly outclasses Windows 3.0 in speed, convenience and elegance.

I look forward to other PC/GEOS-compatible applications that can fully exploit the speed, multitasking and dynamic data exchange abilities of PC/GEOS.

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## PERIPHERALS

# Microsoft Mouse



*by Paul Zucker*

**Product:** Microsoft Mouse 400 dpi mouse for PCs **System Requirements** IBM PCs and compatibles
**Manufacturer** Microsoft (offices in USA, England Sweden, France, Netherlands, Italy, West Germany, Australia, Canada, Mexico Spain and Japan.
**Price** Variable depending on software bundles
**Rating** 4 (on a scale of 1=lowest to 4=highest

**Summary**
Microsoft Mouse is the standard mouse for industry standard PCs, now in its fourth version It is very well made and universally supported. You want Microsoft mouse compatible? THIS is Microsoft mouse compatible!

What's the one thing that can put dread in the heart of a PC user? Installing new software that needs a mouse, but your "Kamikaze" brand mouse isn't listed in the set-up screen Will it work in one of those listed? Let's face it, there's normally nothing as compatible as the real thing

The new Microsoft mouse has increased resolution — 400 dots per inch instead of the 300 dpi of the previous version Some mice on the market are 200 dpi While the resolution won't matter for simple menu selection tasks, it becomes important in complex tasks such as desktop publishing or computer-aided design

A new feature is customized sensitivity curves. This means that you can specify how the cursor will move with a corresponding movement and speed of the mouse An important factor here is acceleration, where slow movement of the mouse gives little movement of the cursor, but short quick mouse movements result in the cursor moving a long way on the screen The net result is less desk space needed for average use, yet retention of full high-resolution control

MM is usually bundled with Microsoft Paintbrush or Windows. The pack includes both 5 25" and 3 5" disks. Two versions are available — serial-port/PS2, and bus (which includes a short card)

It comes with a driver for OS/2 and menus for 10 of the most popular packages, such as 1-2-3, dBASE and word processors.

**PERFORMANCE** 4 It works well, has good customizing capabilities and is very well made

**USEFULNESS** 4 If you need one, you need one! And this is one!

**MANUAL** 4 This one is very comprehensive and useable

**AVAILABILITY** 4 Microsoft is EVERYWHERE The warranty card has support phone numbers for 12 countries, and address labels to let you register with the closest.

## BOOKS

# Used Computer Handbook

by T Bass

**Product:** *Alex Randall's Used Computer Handbook* by Alexander Randall 5th and Steven J Bennett
**Publisher** Microsoft Press, a division of Microsoft Corporation, One Microsoft Way, Redmond WA 98052-6399
**Price** US$14 95
**Rating** 4 (on a scale of 1=lowest to 4=highest)

**Summary:** This is a guide to the buying and selling of used computers. It also advises on when to upgrade instead of sell and how to test systems to see if you are getting what you need.

*Alex Randall's Used Computer Handbook* is your complete guide to the "wheelin' and dealin'" that goes on in used computers from both the buyer's and seller's viewpoint. The book is filled with valuable data on connecting with buyers and sellers, placing a price on the system, and negotiating the deals. It has suggestions about various types of network advertising from word of mouth to brokerages. It is biased, but not without just cause, to using brokerages such as the Boston Computer Exchange

Alex Randall co-founder of the Boston Computer Exchange, has managed to help many buyers get good deals and the sellers get good prices for their systems through his brokerage He is obviously well-qualified to write this much-needed book on the premise that computer technology does not die, it just needs to get shifted around to newer users.

The book delivers one message clearly. Obscure brand clones do not have very good resale value. However, it says, not to be discouraged, your computer may not be a boat anchor just yet. If there is a system that works it will fit a need somewhere What has become a bottleneck for your data flow might be just what is needed elsewhere. For instance, many nonprofit organizations, through which you can obtain tax write-offs, need only to assemble and maintain address databases. They may need to write an occasional letter or report. There may be little or no need for a fire-breathing, multitasking machine in their office

I enjoyed the anecdote which started each chapter, and bits-and-pieces of them dispersed within the text. The Foreword by J Presper Eckert, co-inventor of the ENIAC computer system, along with the introduction and preface were almost worth the purchase of the book.

I highly recommend the book for corporations and individuals considering options for their used equipment.

This book is easy, even enjoyable to read. It was written to make sense of a subject that is usually passed over when someone wants to sell you something new, whether you need it or not. Alex Randall has done well both as an author and as cofounder of the Boston Computer Exchange

**USEFULNESS:** 4. If you have a used system and are thinking of upgrading by moving to a new system this book is a present from heaven.


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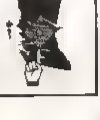
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## *Buying a 386*

**Continued From Page 39**

left on desktop publishing software, but she would not have the future option to add a color display to the monochrome-only Mac, or she could get an IBM-compatible 386SX or DX with approximately three times the speed, twice the storage capacity and the option to add color at whim.

For DTP chores, she is going to be happiest with a system with plenty of speed and storage. A good DTP system might consist of a 25 MHz 386DX with 64K cache, 5 25-inch floppy drive, 80MB hard drive and mono monitor for $2586. Costs add up quickly when we include MS-DOS ($90), a Microsoft or LogiTech Mouse ($100-$130), and Corel Draw ($400) to her system. Jane's total: $3206 plus tax. Better wait till next month to buy that Logitech scanner ($250)!

The $5500 or so that Jane has spent to set up her complete desktop publishing system, including computer, PostScript printer and software is about the same as she would spend for Apple's LaserWriter IINT alone. A comparable (color-capable 25 MHz) Apple-brand system would cost about $13,000!

When Jane is ready to expand into color, she can use as reference material some of those computer magazines she's been buying since she got her computer. From the ads and reviews, she'll notice that the VGA color monitors with the clearest pictures tend to have the smallest dot pitches. If her taste in monitors is anything like mine, she might narrow it down to two: the $1,000 13-inch Seiko 1450 (.25 dot pitch) or the 19-inch Sony Multiscan HG ($1,300, with a .26 dot pitch). Although *PC Magazine* picked the HG Multiscan as their "Editor's Choice," these are both unequivocably great-looking Trinitron monitors with razor-sharp graphics and text.

Because most of her work is related to black and white printing and simple spot colors, she might team her VGA upgrade with a Ca-dinal VGA600 card ($500, and also a *PC Magazine* Editor's Choice) giving 16 colors from a palette of 256 in higher-than-average 1024x768 resolution, or one of the new Super Enhanced VGA Adapters with 1MB of video RAM, for up to 256 colors at 1024x768 (around $300).

If her tastes ran to having a larger display and/or millions of colors, the sky's the limit, both in capabilities and expense! Just a browse through the pages of *The Computer Paper* will give you an idea of the popular standards and the local places that sell them.

The total for Jane's upgrade from monochrome to high-res color: around $1,500.

### Scenario #4:
### The Expanding Office

*Joe owns the Acme Widget Company. They're enjoying quite a success with their new TurboWidget, and Joe thinks that maybe now is a good time to junk the Selectric and get a computer for the office. Joe's accountant agrees, and says that he thinks that Joe could really make good use of a spreadsheet for doing some trend analysis and forecasting, and a database to keep track of the growing number of TurboWidget orders. The accountant, who is a bit of a computer enthusiast himself, says there's enough money in the coffers to "go for the gusto" and get a top-of-the-line system with lots of memory, storage and plenty of speed. Joe is willing to spend up to $10,000 as an investment in his company's future.*

### Recommendation

My first recommendation to Joe is to consider *not* making his purchase at a bargain-prices retail outlet, unless he has a pretty clear idea of exactly what he wants. His best plan will be to enlist the services of a VAR (Value Added Reseller) to help him analyse the areas of his business that can best benefit from office automation. Likely candidates are his accounting system, project planning and inventory system. His secretary will be able to lose her typewriter, but what is the right printer for his office's weekly workload? Should he install a network? Could he get stock market information "piped in?" What about fax? Is a stand-alone machine or a fax board for the new PC the best route?

The VAR will install and set up a system that best meets his needs. Sure, he might pay a few hundred dollars more for the on-site service and training, but it is money well-spent.

It is probably not a very good idea for Joe to base his new system purchase on what his accountant thinks he needs. So often, there is an element of transference, where a computer buff thinks he knows what is best for the business person. This can be especially dangerous when it's not his money.

To make a long story short, Joe went to a VAR specializing in network solutions. They set him up with a network of three 12MHz AT-compatibles, a General Ledger and Inventory Control package, and a suite of business software, complete with on-site installation and configuration. The VAR chose these modest 286-based computers because unlike graphics-intensive applications like CAD, publishing or animation that demand a fast, powerful CPU, the typical tasks that Joe's system would be performing were typing letters, entering widget orders and printing reports.

Because the VAR accurately identified Acme Widget Company's computer needs, they recognized that the kind of tasks that the company would use the system for were not those that benefit greatly from the incurred expense of extra memory storage and speed. Best of all: the total cost was less than the original $10,000 Joe had anticipated. With the money he saved on his network, Joe bought computer training courses for all his staff members. Now *that's* good business.

### Scenario #5:
### The Do-it-Yourselfer

*Paul plays the keys. As a musician, he plays the clubs, records as a session musician, and likes to jam his own tunes "with an attitude." Paul fancies getting a computer to act as a sequencer for helping him to record and play back his synthesizers on-stage and in his home studio. He's got a day job, too, so he's got a few thousand dollars to spend. He reads in the magazines that Macintoshes figure prominently in many recording studios in the U.S.A., but here in "nowheresville," several of his friends own Atari 1040 ST's. Should he go with his friends' recommendations, or take a look from the big-timers down south?*

### Recommendation

If Paul does the right thing, he'll pick whatever system has the software that best meets his needs. The Atari 1040 STE (about $1200 with monitor), with built-in MIDI ports is well-established with excellent MIDI software, as is the Mac.

(A Macintosh Classic, as mentioned earlier, is about the same price)

The actual computers themselves differ little in comparable price ranges, except that the Atari offers stereo sound and 4096 colors versus the monophonic, monochrome-only Mac. While I like Macs and their MIDI programs just fine, I think the Atari has better MIDI software options.

On the Atari, most experts would agree that the one to beat is C-Lab Notator. For modern composers and electronic musicians, an Atari running C-Lab Notator is an excellent choice. It works reliably, is fairly easy to learn, and prints a great-looking score.

Performing musicians have their own list of features they need from a sequencer, and I don't think Atari lets them down there, either. For travelling types, Notator runs on the $2000 Atari STacy portable computer. As with our last example, it is probably best to allow a salesperson at a music store to be your information source on specific features of these high-end MIDI programs.

Depending on Paul's budget, he could get the Atari, Notator and a dot-matrix printer for his $2,000. If he needed higher quality printouts, he could go to a 24-pin printer, or a Hewlett-Packard DeskJet for about $300 and $500 more, respectively.

If Paul could spring for a few hundred more, he could substitute the 2-megabyte Mega 2 model (about $1500 with monitor) instead, which would allow him to take advantage of Notator's multitasking abilities, and later (when he hits the big time), add DigiDesign's Sound Tools sound card for CD-quality digital audio recording capabilities.

## BRIDGE TO LAPTOPS
CONT. FROM PAGE 32

workbench. This means that users would deal with PC files using PC programs in the traditional MS-DOS mode. Although this is undoubtedly the most efficient and direct way to deal with PC files, it is overkill if the emulator is used merely for file transfer.

**Use of Software File Readers**

The majority of computer owners have available both commercial and public-domain file readers which enable their computers to read files from and write files to formatted MS-DOS diskettes. Most of these file readers work best with text stored as ASCII (generic text) files. The process is usually quite simple, and, in some cases (as with Access-PC or DOS Mounter for the Mac or the Amiga program CrossTalk) the program can be made resident and files read at will. The advantage of this process is that it allows users to utilize their computers in their native mode. Although I have an emulator and do a good deal of work in MS-DOS mode, this is the process I use to convert MS-DOS WordPerfect files to the Amiga format.

**Utilizing Outside Bulletin Boards**

Although this procedure appeared to have more advocates than any other in a BBS survey, it cannot be considered the option of choice, simply because it requires that both computers have modems, and all respondents to the survey obviously had modems. It involves uploading files to a BBS from the MS-DOS computer (mostly in generic text mode), and then downloading them using the Amiga, Atari, or Mac desktop. I use this method to communicate with *The Computer Paper*.

**Use of "Null Modem"**

A null modem is simply a serial-serial port hookup where the wires in the hookup get "reversed" on certain pins from one end to the other. It requires a null modem cable that has the RS-232 transmit and receive connections inverted at each end.

Thus the Transmit Data line on one end becomes Receive Data on the other end. It's used in conjunction with a terminal program on each end to transfer files at the highest common speed (usually 9600 baud) from one machine to another. This method, although it also has many advocates among the modem crowd, is fairly cumbersome.

**Connection Simple, Inexpensive**

If you're considering buying a laptop, but are holding back because you're unsure of how to connect with your non-MS-DOS personal computer, wait no longer. Most of these methods are simple, inexpensive, and well within the reach of the average user.

**Nancy Davitt Loriaux** is an Edmonton education and communications consultant specializing in using computers to develop effective change mechanisms. She has written for many international Amiga publications.

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## AMIGA

### Amiga Gets Networking Capabilities

*by Nancy Dewitt Lorieau*

Behind all the furor about the video and multimedia capability of the Amiga 3000, and its cohort/companion, New Tek's Video Toaster, Commodore Business Machines has quietly introduced several new hardware and software adaptors which may prove more significant in enabling Commodore to become a "real" contender in the education and business arenas.

The products, paired with the inclusion of the ARexx language within the Amiga's operating system, are supposedly a key component in the company's strategy to penetrate the business, higher education and government markets. The products introduced include the following:

**The A2065 - Ethernet Network Adapter**

This adapter runs at 10 megabits per second and provides full ANSI 802.3-type Ethernet protocols over both thick and thin Ethernet connections. This product should give Amiga users access to the widely-installed Ether networking standard. (List price - $349 )

**The A2060 - Arcnet Network Adapter**

This adapter provides full Arcnet bus protocols over Arcnet bus topology networks.

Running at 2.5 megabits per second, the adapter supports up to 256 nodes and includes a socket for optional autoboot ROM. It also includes buffered memory, to further enhance inter-system communications. (List price -$229 )

**The AS220 - Amiga Client**

This software product enables users of the A2060 Adapter to communicate with Novell Networks running Novell NetWare Version 2.15 or higher. It features password security and provides the user with two interfaces: a text-oriented interface or a mouse-based interface. Because of its multitasking capacity, the Amiga should be able to utilize this feature while simultaneously running other programs under AmigaDOS and/or MS/DOS (utilizing the Bridgeboard PC add-on). (List price - $149 )

**TCP/IP and NFS software**

This product will enable the Amiga to connect to DoD and other networks which support either of these standard packet-switching protocols.

Several other networking products for the Amiga have been announced by third-party manufacturers in recent months. Among the most interesting is GfxBase's X-Window System, which allows Amiga users to run applications on other machines while displaying the program's output and interfacing with the program from their Amiga System. (List price - $195.)

**Unix Capability Announced At COMDEX**

As another indication of the

**Continued On Page 53**


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OCR

# Text Hoover



*by Graeme Bennett*

**Product:** Typist hand scanner with OCR Publisher Caere Corp

**System Requirements:** (PC version) 286 or 386 based PC or PS/2 with 386 processor 640K conventional and 2MB extended or expanded RAM 2 MB of free hard disk space DOS 3 1 or higher empty half-slot for the Typist interface card

**Optional:** Windows installation requires Windows 3 0 and mouse DOS installations require a CGA, EGA, VGA or Hercules graphics-compatible video adapter to scan graphics (Macintosh version) Mac SE or above with 4MB RAM, 2 MB hard disk space, Multifinder and System 6 0 or later SCSI cable and cable terminator

**Price:** US$495

Just how does Typist work? Don't scanners operate something like a copy machine, simply transferring the image into the computer? Not exactly A scanner translates its "view" of a page into "bit-map" data by dividing up the image into millions of dots or "bits" (usually from 40,000 to 90,000 per square inch) It then assigns a value to each dot, depending upon whether it is inked or blank. The composite document that is stored in your computer is the "map" of these dots; hence the name, "bit-map "This bit-mapped image is like a finished photograph or painting, the only way to change it is to draw or paint over it The bits are fixed and uneditable

Text characters, on the other hand are made up of codes assigned to each letter number, or symbol While there are various different code sets in use, the most common code set is the ASCII (pronounced ask-ee) table of character equivalents. ASCII stands for the American Standard Code for Information Interchange and is in such popular usage that it is generally recognized as the universal code for small computers. Almost every word processor database-management, and spreadsheet program indeed, almost every program that makes use of text and/or numbers "understands" ASCII Since each character is assigned a separate code (corresponding to the keys on the keyboard) the text is fully available for editing

Converting a bit-map to ASCII code might seem simple since we humans have been recognizing text for most of our lives but to the computer it is no easy feat. In the past, text recognition consisted of comparing a bit-map shape to a library of character shapes, if the shapes matched, a letter was identified This method was called "matrix-matching " Unfortunately, that method only worked for a limited number of fonts and sizes, text characters vary considerably and it would take a gigantic computer to correctly match all character shapes. All this changed when Caere Corporation released OmniPage, a page-recognition program using revolutionary OCR technology that analyzes ^individual character features (feature-analysis) rather than ^matches shapes (matrix-matching)

Caere has developed the text-recognition art to the point where it can offer you Typist, a powerful convenient, yet inexpensive text-recognition and image-scanning tool that works with a full range of computers. from your trusty' 286 to the latest Macintosh or Micro Channel ^Architecture ^386.

## *Amiga Networking*

**Continued From Page 52**

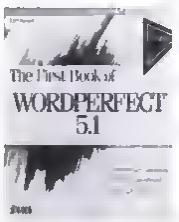
company's intention to go head-to-head with the "big boys" of the computer world, Commodore chose the Las Vegas computer show to announce its offer of a UnixDeveloper's System at an extremely reasonable price to "any interested institution, college, business or individual (corporate or other) who wants to begin the porting process of an application to the Amiga 3000 UX/D

According to Commodore executive Paul Calkin, the system will consist of an Amiga 3000 with 8 megabytes of fast RAM, a 200 megabyte hard drive an Ethernet card and a 25 MHz 68030 chip The price quoted by Calkin was $4999 US.

While Commodore Canada has remained silent about this offer, its recent aggressive stance in the marketplace indicates it could be expected to follow suit. Interested developers should contact CBM Limited (Canada) at 5470 Pharmacy Avenue, Agincourt, ON M1W 3G3 - Telephone (416) 499-4292, or the U S. office of Commodore at 1200 Wilson Drive, West Chester, PA 19380 - Telephone (215) 431-9100


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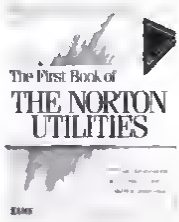

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Believe it or not all the text above was typed into my word processing program simply by gliding a hand held scanner over the contents of two pages of the Typist manual. The procedure took about fourteen seconds per page, seven of which consisted of actually moving the scanning unit down the page.

The text automatically appeared in my word processing program, appearing to the computer as if the input was coming from the keyboard. This trick allows Typist to input text into virtually any program. No editing was done, and as you can see, the text recognition was (in this case) 100% accurate. However, notice that in the last two paragraphs, Typist inserted carets (^) in three places, as a way of indicating that it was unsure if it had correctly recognized the following characters (it had).

Caere Corp., makers of Typist, claim a 99.3% average accuracy rate, and this test more or less substantiates that claim. This is close to the 99.7% accuracy level of their earlier OmniPage OCR software for flatbed scanners under similar conditions. Unlike Typist, though, OmniPage is a separate program that must be run to perform the OCR task.

The Typist's convenience of not having to exit your word processor is immense. The potential benefits are obvious to many kinds of people, especially to us here at *The Computer Paper*, where we are continually inundated with information, often in the form of press releases and printed documentation.

So, does the Typist come in handy? Yes and no. Undeniably, it works well on certain kinds of documents, particularly small books and manuals that can lie relatively flat, and have wide margins. Unfortunately, original documents of poor quality (like most faxes), or thick books with insubstantial margins tend to produce results that are erratic, to say the least.

The very next document I tried (a sample of text from a press release, set in Garamond), ended up looking like this.

*Fremont's first Faxography progra^m. provides full Letter Quality (LQ) dot matrix printer and 24-pin graphics emulation. Any PC application program (word- processing, spreadsheet, database programs, for instance) that supports Epson, printers can generate letter quality fax messages, including graphics, with, Fremont's Faxography LQ software.*

In our second example, as before, the program flags words it's not too sure about with a caret (again, it was a case of over-cautiousness — progra^m is, of course, spelled correctly). Of particular note are the ones it didn't even suspect it got wro·ng: the program mistook "fonnat" for "format", "time" for "time" and "matrix" for "matrix." Also, in this example, we saw a tilde character (~) repeated several times throughout. This means that the OCR program could not identify the correct character, and inserted a tilde rather than make a bad guess. All told, our second example had 12 recognition errors out of 156 words, or about 92% OCR accuracy. As you can see, the better-than 99% average mentioned earlier represents ideal conditions. In real-world applications, especially with unusual fonts, results will vary widely.

## Smart Software

Interestingly, Typist is smart enough to "splice together" horizontal passes of the scanner to allow full letter-sized pages to be recognized. Even better, if a segment of text in this "overlap area" is deleted during your editing process, Typist does not re-insert it.

Amazingly, you can scan from left-to-right, right-to-left, or up-to-down and the program figures out which way is up, and interprets the text correctly. This is such a nifty feature that I leave the "auto scan direction" option on all the time, even though it adds a second or two to the recognition time.

## Image Scanning

Typist can also function as a graphics scanner, although its picture-scanning capabilities are somewhat rudimentary. (As far as I can tell the manual doesn't even mention the unit's dots-per-inch specification.)

Most scanners these days include what is called gray-scale capabilities. Typist does not, instead offering only bi-level (black and white) scanning with a choice of three dithered dot-sizes. This type of simulated halftone produces acceptable results only if you don't resize or otherwise distort the resulting image. Luckily, it is possible with several programs (running on either PCs or Macintoshes) to create true gray scales from a dithered scan where none existed. Here's how:

1) You will require a program that can load a bit-map and convert it to gray scales. On the PC, *Picture Publisher* from Astral Developments, *Gray F/X* from Xerox Imaging Systems, and *ImageEdit* from IBM's applications Software Division are dedicated gray-scale editors, while *Image-In* from Image-In Inc. includes gray-scale editing functions as part of an all-purpose scanner package, and *PC Paintbrush IV Plus* from ZSoft incorporates them in a standard paint program. On the Mac, you could use *Digital Darkroom* by Silicon Beach Software, LetraSet's *ImageStudio* or *ColorStudio* or Adobe *PhotoShop*.

2) Load in the bit-mapped "dithered" image. Convert the image to gray scale. Some programs will ask you to enter the number of dots that you want to convert to each gray "cell." If possible, select a 6x6 matrix. This has the effect of reducing the resolution from its original 400 dpi image to one-sixth of that, or about 66 dpi, but the conversion process calculates different shades of gray based on the number of dots in each cell. Hence, the dots disappear.

Why would you want to reduce the resolution from 400 dpi to 66 dpi? Once the image has been converted to gray scale, you can alter the brightness, contrast, size and amy±ad of other aspects of the image. Particularly effective is a process called error diffusion that converts a gray-scale picture back into a bi-level image, but with complex dot patterns (Digital Darkroom called it "advanced halftone"), that print much better on low-resolution output devices like laser printers. (This trick works with other bi-level scanners, too, including units designed for Amiga and Atari computers.)

Around the office, we refer to Typist as "Darth Vader's Remington," but it is really more like a text vacuum. If I want to keep a piece of information I have read, I Hoover it into a file on my computer with Typist, and I can later let the computer do the searching. After all, that's what computers are for, isn't it?

PC GAMES

# Stunt Driver

*by John McCormick*

**Product.** Stunt Driver, game for IBM PC and compatibles
**Publisher.** Spectrum Holobyte, 2061 Challenger Drive, Alameda, CA 94501, 415-522-3584
**System Requirements.** PC-compatible with one floppy drive and 640 kilobytes of memory
**Price.** US$49.95
**Rating.** 4 (on a scale 1=lowest to 4=highest)
**Summary.** Terrific muscle car race and stunt-driving simulation that pushes the envelope of driving games

I don't have much time to review games but I take a look at everything that comes into the office for review before I assign them to other testers, either my wife or the ultimate tester, the nine-year-old who lives next door.

As usual I expected to spend more time loading Stunt Driver into the computer than I would playing it, but after a few minutes playing around with it I discovered that three hours had passed in the real world.

This is the ultimate accolade I can pay to any game and is the same way I choose science fiction novels if they are so absorbing that I lose track of time, then they have fulfilled their purpose. If they also teach or expand a user's horizons then so much the better, but if a novel or a game is entertaining enough to make me forget what time it is, that is certainly all I feel I can ask of the author.

In Stunt Driver you get to try your hand at driving a 1966 Shelby Mustang both on a training track and on various stunt tracks, both solo and against up to three opponents who range from a little old lady in a VW to a polo-playing yuppie in a Porsche and an IROC-Z driving punk. You can also play against a human opponent on another computer.

It is always difficult to translate car and airplane controls to the keyboard, joystick, or mouse; at least the results are always unsatisfying for those who have flown planes, driven race cars, piloted racing yachts, and so forth. But given the restrictions imposed by a computer's available controls, Stunt Driver is quite easy to drive, at least at very low speeds.

You get an automatic to start out with, but if you are up to the hand-eye coordination needed you can switch to a four-speed stick. Sounds (which can be shut off) are very realistic even with the small speaker in my IBM PS/2 and should be spectacular with an optional AdLib sound card.

Stunt Driver will run from a single floppy system, something which always wins my praise, but isn't copy protected so it will end up on many players' hard disks. One note here: the 256-color VGA version won't run from a floppy simply because of its size.

The new common method of protecting the game's copyright involves identifying pieces of stunt tracks as pictured in the manual and, although I don't object to this sort of owner verification, I wasn't pleased to find that even with the manual I sometimes failed to correctly identify the proper choice and had to try again to enter the game.

This is a minor complaint, one it would be easy to address by making the diagrams a bit simpler so a standard VGA display would be clear enough to differentiate between various chart pieces. The resolution problem doesn't apply to actual game play, just the password protection.

The game is very interesting and I found it absolutely engrossing, so please read the following suggestions/complaints in the light of my overall strong liking for this game.

Something I would really like to see added to games of this sort is an indicator that would light up to show when you are starting to push the envelope rather than just let you crash and burn when you go into a corner a bit too fast.

This might seem a bit wimpish but would actually just be a substitute for those environmental feedback signals that let a driver know his or her machine is about to break loose and go sliding into the wall.

I can't think of any other way a computer game could provide such feedback that is essential to actual driving at any high-performance level.

I must admit that, despite having a lot of fun with it, I didn't do very well at Stunt Driver, despite the fact that I have been a pit crew member of an SCCA (Sports Club of America) racing team, owned a sports car garage, and still collect, drive, and generally play with very high-performance cars quite similar to the one being used in Stunt Driver.

The problem with ALL games like this is that there is no way for the software to provide a real "feel" for the condition of the road which is necessary for any race car driver.

I would really like to try some game like Stunt Driver that included a green-yellow-red indicator of some sort which would provide some warning that the car was about to go out of control. Such a system might not replace the actual feeling you get when the steering starts to go a bit mushy, but it might, and I would like to find out.

Certainly users should be able to turn such a feature off if they didn't like it.

I would also like to see a way to tune a car for understeer and oversteer, a vital adjustment in real vehicles. There are a lot of adjustments you can make both to your car and opponents' vehicles, so this is a minor complaint from an old-time driver and tinkerer, and perhaps it is in there and I just missed it.

But those are just my suggestions for a "perfect" game, something which game producers like Spectrum Holobyte are coming closer to every day. I still highly recommend this game for anyone who likes this sort of arcade game, it is a lot of fun, even when you crash.

Once you have mastered simply keeping the vehicle on an oval track (not all that easy if you want to reach qualifying speeds), you can move on to "real" stunt driving on tracks with jumps and inverted loops. You can also design your own stunt track when you get bored with the options supplied with the game.

The normal view is through the windshield, the new that lets you watch the gauges, but you can look out any window, choose to drive from the view of a helicopter following you down the track, or even attempt driving from the changing viewpoints supplied by track cameras placed at strategic positions around the tracks.

A simulated VCR that automatically records your race and lets you play it back to see a spectacular jump (or crash) is a nice addition that I really like.

Despite my minor complaints and suggestions, I really like Stunt Driver and may have to hide it when it comes time to finish up my next book. While it is still nice outside I am playing with real cars, but I have a feeling that Stunt Driver will get a lot of computer time once the snow starts flying.

**PERFORMANCE.** 4. This is a terrific game.

**USEFULNESS.** 4. I am giving it a high rating because it is a lot of fun. Stunt Driver may even prove to be the way I ease my wife into driving muscle cars before trusting my toys to her on the highway, but I am not certain how transferable the driving skills will be.

**MANUAL.** 4. Documentation that is not only clear and informative, but interesting enough that many users will actually read it. Of course I played the game for hours before reading a word, but once I did look at the manual I read it from cover to cover.

**AVAILABILITY.** 4. Spectrum Holobyte games are popular and easy to find in computer stores, or order by mail.



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DATA BASE CONCEPTS $70
USING dBASE Level 1 $180
BURNABY SCHOOL BD 936-4261
dBase III+ Level I $80
CALEMA CONSULTING GROUP 290-7785,
Advanced Revelation — Authorized Training Centre Intro. User Programming & Advanced
CAPILANO COLL. N Van 984-4900
dBase III+
COASTWAY 206-2501 Spruce, Van 736-5099
dBase IV, 12 hours
COMPUTERLAND 640-8900.
dBase IV Level 1 &2
COMPUTER EMPIRE 879-4162
dBase III+ (call for dates) $145
COMPUTER STATION 732-8621
dBase III (Intro), on request $180
CORPORATE PUB. GROUP 1500-701 W Georgia, 683-1140.
dBase III+, dBase IV Level II, call for dates $199
COQUITLAM CONT. ED. 936-4261
dBase (Intro, Intro ) $80
DOPPLER 101 W 5, 875-0261
dBase Intro, dBase Adv.


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dBase III Plus The Essentials,
Designing Syst. with dBase III+
DRAKE 601-889 West Pender 688-6789
dBase III+/IV Smart, Symphony Paradox
JUMP SYSTEMS Suite 450-890 W 41st, Vancouver 263-5867 dBASE III, DBase
KWANTLEN COLLEGE, 588-4411
dBase III+ Intro $75
LANGLEY COLLEGE, 530-4411
Database 120 hrs $600
LANGLEY CONT. ED 530-4227
dBase III+ $89
MICROAGE 3601 W 16th Ave. 222-1010.
dBase III, IV $175
PSSC TRAIN, 900-885 W Georgia 682-5616
dBase III+ L.1-2-3 $175
dBase IV L.1-2
PCTI 526-6673 dBase IV $180
PITMAN 1490 W Broadway 738-7848
dBase III+, dBase IV $180/$120
PROF. TRAIN. 502-1199 W Georgia 681-5908
dBase IV, L. 1-2-3/V; dBase III to IV $175
ROSSI, DEGROOT & ASSOC. 1066-650 W. Georgia, 683-0030.
dBase III+ Intro & Adv
STM SYSTEMS CORP 688 7721
dBase III & Introduction $170
UBC CONTINUING ED., UBC Microcomputer Lab 222-5251
Advanced dBase IV Programming Tech. $395
Effective Database Design, $575
VANCOUVER SCHOOL BD., 736-7241
dBase IV $90
Paradox 3.0, Intro., $85
VCC CONT ED Certificate Prog. 936-5922
Intro to dBase III+ $180
Intermed. dBase III+, $180
Intro to dBase IV $180
Programming in dBase $180

## DT PUBLISHING

BURNABY SCH. BD. 299-4361
Word Perfect 5.0, Level 1 $95
CAPILANO COLL. N Van 984-4261
Desktop Publisher $70
CIRRUS ENTERPRISES, Victoria, 386-8844.
PageMaker, Ventura
COASTWAY 206-2501 Spruce St. 736-5099
PageMaker, Ventura, Corel Draw
COMPUTERLAND 640-8900
(DOS) PageMaker, (MAC) Pagemaker,
COMPUTER EMPIRE 879-4162.
Ventura $145
COMPUTER STATION, 2150 Burrard St., 732-8621.
Ventura DTP, $180
CORP. PUBLISHING LTD., 1500 701 W Georgia St. 687 1140.
PageMaker 3.0 L.I. $390
PageMaker 3.0 L.II, $390
Ventura 2.0 L.II, $900
COQUITLAM CONT ED 936-4261
DTP Art Programs $80
DOUGLAS COLL. New West. 527-5470
DTP Art Programs (16 eves.) $440
DTP Intro to Graphics (16 eves.) $438
PageMaker Skills L.II, 5 eves. Mon/Wed $260
DOPPLER 101 W 5th 875-0261
Ventura, Pagemaker


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101 West 5th Ave @ Manitoba St.


GUILDFORD CONT. ED. Centre, 14877 100A Ave. Surrey 268-2221
Mac PageMaker $80
JUMP SYSTEMS Suite 450-890 W 41st, Vancouver 263-5867 PageMaker Ventura
KWANTLEN COLL. Surrey 588-4411
Desktop Publ, Graphic Arts & DTP Intro
LANGLEY CONT. ED 533-4227
DTP IBM Intro. 4 sess., 3 hrs. $100
DTP With PageMaker $70; Mac Intro $69
DTP with PageMaker $72
McKAY TECH 2151 Burrard 736-7221
Desktop Publ, Graphic Arts 12 wks
MICROAGE 3609 W 16th 222-1010
Aldus PageMaker Pt. 1, 2 $175
NAVIGATOR TRAINING, 878-8427
Microsoft Powerhand, Xpress, Illustrator
NORTHWEST DATA, 985-6404
PSSC 900-885 W Georgia 682-5616
PageMaker Ventura Call for Info $450/$650
Harvard Graphics,Freelance Plus 1 day $200
Corel DRAW Intro $400
PCTI 526-6673 PageMaker $180
PITMAN 1490 W Broadway 738-7848
PageMaker & Ventura (days/ eves.) $180/120
Van. Desktop Publishing Prog. 12 wks.
PROF. TRAIN 502-1199 W Georgia 688-5908
PageMaker, Ventura $300
ROSSI, DEGROOT & ASSOC. 1066-650 W. Georgia, 683-0030.
PageMaker, Ventura
SELKIRK COLL., Castlegar 1-365-7292
Electronic Publishing, Graphic Design
SIMON FRASER Downtown 688-4252
Intro to Ventura Publisher $160
STM SYSTEMS CORP 688 7721
PageMaker $320
STRACHAN COMPUTERS LTD. 4262-1780 Marine Drive, West Van 926-6424
PC PageMaker, CorelDraw
Intro, Adv ,Private/group lessons
TLD COMPUTERS #150-5851 No. 3 Rd. Richmond
Pagemaker Basic $250, Advanced $300
VAN DTP CTR 1150 Homer 681-0181
Ventura, Pagemaker
VAN SCHOOL BD 736-7241
DTP IBM PageMaker 3.0, $135
DTP Ventura 2.0 $135
VCC, 250 W Pender St., Van., 682-5844
IBM/IBM Compatible
Graphic Design for DTP $75
Internmed. Design for DTP $75
PageMaker (Intro, Interm), $180
DTP Workshop (PageMaker) $375
Intro. to Ventura, $180
Adv. WordPerfect DTP, $180
VCC CONT ED Cert. Prog. 324-5922
Intermed PageMaker DTP $180
Adv PageMaker DTP $180
Fast Track PageMaker DTP $300
Intro to Ventura DTP, $180
Adv. WordPerfect DTP, $180

## EVENTS

COMPUSALE, Industrial Trade & Consumer Shows Inc. (416)282-7791 toll-free
1-800-268-0087 or fax (416) 282-9640. March 8, 9 & 10 1991
Automotive Building, Exhibition Place, Toronto.
DEALING WITH VENDORS AND SUPPLIERS Delta River Inn: 3500 Cessna Dr., Richmond, B.C. 278-1241 $295 per person, Max-Profit Fee - $265 per person.
HOME BASED BUSINESS SEMINARS by H.A. (Buzz) Beaseon HOME MADE MONEY (How To Successfully Start a Home Based Business) North Vancouver 986-8988,
EDUCATING THE NEXT GENERATION OF PUBLISHERS: AN INTERNATIONAL CONFERENCE, Can Centre for Studies in Publishing, SFU at Harbour Centre 515 W Hastings St. May 3-4 1990 Brings together leaders in publishing industry and professionals engaged in teaching of publishing. 291-5068.
HANDS-ON TROUBLESHOOTING PC'S, LEVEL 1 Registration Single $1295, Vancouver, B.C Jan 7-9, 1991 Hotel Georgia, 801 W. Georgia St. 980-5588.
LOCAL AREA NETWORKS, Feb 5-8 Hotel Meridien Vancouver, 845 Burrard St., Vancouver, 2 day $695, Data-Tech Institute, Call 1 201-478-5600
PACIFICA FORUM 1991 Innovation in Publishing, May 29-30 1991 The Can
Centre for Studies in Publishing, SFU at Harbour Centre, 515 W
Hastings St. 291-5073 Two-day event showcasing innovative
ideas and experiences in all facets of publishing industry.
PUBLIC LEGAL EDUCATION SOCIETY...Free class on computers and the law for
sellers, buyers and users. 436-6041
S-D COMPUTER ANIMATION 12-week Intro course starts Jan 14th 12-week
Intermediate course starts Jan 16 BCIT and Digipen 434 1610
UNIX Overview Seminar, Jan 11 8:30-noon, $75, BCTel Group, Educational
Development Centre 298-2696.

## INTEGRATED

CIRRUS ENTERPRISES Victoria, 386-8844
Framework II Intro Advanced
COMPUTER STATION 2150 Burrard St. 732-8621,
Maximizer Contact Mgmt. Software $180
DRAKE #601 889 West Pender 688-6789
Smart, Symphony
GUILDFORD CONT EDUC., 14877-100A Ave., Surrey, B.C., 268-2221 MS-Works $80
STM SYSTEMS CORP 684-7721 Symphony $280
SURREY (Newton Cont. Ed.) 594-2000
Microsoft Works
TLD COMPUTERS #150-5851 No. 3 Rd. Richmond
Microsoft Works, $200
UBC Cont. Ed. UBC Microcomputer Lab, 222-5251
MS-Works, Intro $195
VAN SCHOOL BOARD 736-7241
Framework II, MS Works Lev 1 & 2, $80
Symphony Lev 1& 2 $80
VAN. COMM. COLL. 250 W Pender Van. 682-5844
Intro to Microcomputers, $180
Intro to Excel, $180
Intro to MS-WORKS 2.0, $180
Intermed. MS-Works, $180

## NETWORKS

BCIT 3700 Willingdon Burnaby 434-1610
COMP 286, Novell Netware 286, $180
CENTRE FOR ADVANCED PROFESSIONAL ED (800)345-6840
Troubleshooting LANS
CIRRUS ENTERPRISES, Victoria, 386-8844
Intro. to Local Area Networks
COMPUTER EMPIRE 879-4162.
Networking Sys. Instal. $245
DRAKE #601 889 West Pender 688-6789
Netware System Manager for Novell
JUMP SYSTEMS Suite 450-890 W 41st, Vancouver 263-5867
3Com Network Admin., Novell Netware

# COMPUTER PAPER COMPUTER CALENDAR

NETWORK SPECIALISTS Inc., 3226 Bata Ave., Bby 294-5895 or 1-800-663-1914
Various network and Novell courses
MICROAGE 3801 W 16th Ave., 222-1010.
Novell Syst. Mgr $695
ROSSI, DEGROOT & ASSOC, 1099-650 W. Georgia, 669-0020 Novell Network,
Systems Administration, Network Operations.
SOFTRAK SYSTEMS 1961 W.8th, 736-5741
Novell. Call for info.
TLD COMPUTERS #150-5951 No. 3 Rd.
Novell Sys Man $200
UBC CONTINUING EDUC., 222-5251
Local Area Networks, $65
Novell Administrator's Workshop, (5 Thur) $395
VCC CONT. ED Certificate Prog. 324-5922
LAN Network Management (1) $100

## MACINTOSH

ADVANTAGE 535 Howe St., 685-9927 $100
Macintosh Level I Jan. 7 & 21
Macintosh Level II, Jan. 7 & 21
Macintosh III Jan.14 & 24
MS Word Level 1, Jan 8 & 22
MS-Excel Level 1 Jan 8 & 22
Microsoft Word Level II Jan 8 & 23
Microsoft Word Level III Jan 24
Microsoft Excel Level II Jan 25
BCIT, 3700 Willingdon, Burnaby 434-1616
COMP 190, Meet the Mac, 12 wks $200
BURNABY SCHOOL BOARD
DeskTop Publishing, $55
Microsoft Word on the Mac, $55
CAPILANO COLL., N. Van 984-4901
Basics of Micro-Computers $100
DRAKE, #601 889 West Pender 689-6789
Word Intro/Excel Intro
FOLKSTONE DESIGN, 266-4502
Microsoft Word, PageMaker, Excel
GUILDFORD CONT ED Surrey, 589-2321
Intro to Mac., $95
LANGLEY CONT ED 888, 533-4227 $95
Macintosh Intro $95
Macintosh Painting & Drawing $95
Microsoft Works/Macintosh $95
MACSUPPORT 737-5885
On-site instruction, consultation, development. Mail Intro, Word
Excel, Works, MacDraw, SuperPaint, PageMaker, HyperCard,
FileMaker, Fontema, 4th Dimension
McKAY TECHNICAL INSTITUTE, 2151 Burrard St.,736-7221
Intro Macintosh $85; MS Works $150
Word $95 PageMaker $300
File Mgmt $85 Freehand 2.0 $150
Quark XPress 3.0 $450
SFU DOWNTOWN, 291 $100
Intro. to PageMaker
SURREY (Newton Cont. Ed.) 594-2000
Intro to Mac $65
UBC CONTINUING ED., UBC MicrocomputerLab, 222-5251
Getting started with your Mac $145
VAN SCHOOL BD 736-7241
Mac Intro, PageMaker Excel, Word, MS-Works Bedford, WordPerfect, SuperPaint $60

## MUSIC/MIDI

ANNEX HIGH TECH MUSICAL INSTRUMENTS, 1250 Granville St., Van 682-8630.
MIDI Music Tech 6 wees. $150
Peavey DPM 3 Digital Word Station
Performer MIDI seq., C-Lab Notator $95
E-MU Proteus Voice Creation $35
Yamaha SY77 Digital Workstation $35
CAPILLON MUSIC LTD #100-8171 Ackroyd Rd., Richmond, B.C. 276-2368
Instruction on many popular Music programs including Cakewalk,
MusicPrinter Plus Personal Composer Version The Final Cut,
Send-in-a-Box. Four (4) hours for $60

## PROGRAMMING

BCIT 3700 Willingdon Burnaby 434-1616
Computers in business, various programming languages. Call for information.
BURNABY SCHOOL BD, 299-4361
BASIC I $45
BASIC II $65
CARIBOO COLL., Kamloops, 828-1616
Intro Micros $100
CIRRUS ENTERPRISES, Victoria, 386-8944,
Course Devel. services. Intro to SAS
LANGLEY CONT ED 888, 533-4227
How to Get Started with Your Computer
Managing Your Hard Disk $65
Earn Money with Your Computer $50
LEARNING TREE INT., 1-800-387-1909
Project Management, Halifax, N.S., July 24-27
SIMON FRASER UNIVERSITY Burnaby V5A 1S6, fax 291-4951
Digital Cellular and Personal Telecommunications
Getting a Grip on Knowledge Processing
Simulation, $50
Introduction to Neural Networks, $200
Design & Fabrication of Analog Integrated Circuits Using the QuickChip Prototyping Facility $600
VCC CONT ED Certificate Prog. 324-5322
Intro. to Modula 2 as a 2nd Language
Fundamental Concepts of Computing
Intro. to Formal Topics in Computing Science
Software Engineering
Intro. to Digital Circuit Design
Operating Systems 1
Info .Systems Management
System Development Projects
Database Systems and Structures
Info. System Design
Digital Circuits and Systems
Microcomputer Hardware Workshop

## SPREADSHEETS

ACCSYS Suite 205, 555 Thurlow St. 685-5342
Lotus $150
BCTEL GROUP, Education Development Centre,1 day,299-3836
Lotus I Jan 19 & Feb 2 $200
Lotus II Jan 26 & Feb 9 $200
Lotus III Feb 16 $200
BCIT FT 434-1616, PT 434-1616
BCIT 3700 Willingdon, Burnaby, 434-1616
Framework II Lotus 1-2-3
Comp 115 Spreadsheet Concepts, $70
Comp 169, Lotus 1-2-3 Level 1 $100
BURNABY COLLEGE 437-5711 Lotus
BURNABY SCHOOL BD 299-4361
Lotus 1-2-3 $65
CARIBOO COLL., Kamloops 828-1616.
Spreadsheets $100
CIRRUS ENTERPRISES, Victoria, 386-8944
Lotus 1-2-3 QuattroPro Intro Excel
COASTWAY 2801 Spruce, Van 736-5088
VP Planner Plus 12 hrs, Lotus 1-2-3 12 hrs
COMPUCOLLEGE Van 689-0606 Bby 415-2434, Rich 273-6873 Micro Business Appl
COMPUTER CENTRE 879-1182.
Lotus 1-2-3 (call for dates) $149
COMPUTER STN 2190 Burrard 732-8621
Intro to Lotus 1-2-3, $100
Intermed. Lotus 1-2-3 $100
CORPORATE PUBL GROUP, 1500-701 W Georgia, 687 1140
Lotus 1-2-3 Level II $195
Advanced Lotus $195
COQUITLAM, CONT. ED. 936-4361
Lotus 1-2-3 Lev 1 & II $65
DOPPLER 101 W. 6th 875-0661
Lotus 1-2-3 Intro & Adv $149
DRAKE #601 889 West Pender 689-6789
Symphony, Smart, Lotus
IPC SYSTEMS, 225 W. 7th 873-3685
Lotus 1-2-3 Basics Call for dates $150
JUMP SYSTEMS Suite 480-650 W 41st, Vancouver 266-5687
Lotus 1-2-3 Excel
KITSILANO NEIGHBOURHOOD HOUSE, 2305 W 7th, 736-5359
Lotus 1-2-3, Intro $150
LANGLEY COLLEGE, Langley 888-8411
Spreadsheets 120 hrs $500

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101 West 6th Ave @ Manitoba St.

LANGLEY CONT ED, 533-4227
Lotus 1-2-3 I, II, Wed., 6 p.m. $65
McKAY TECHNICAL INSTITUTE, 2151 Burrard, 736-7221
Lotus 1-2-3, 20 hrs. $250
MICROAGE 3801 W 16th 222-1010.
Lotus 1-2-3 Pt. 1 $175
NORMAN RJ & ASSOC. 660-4137
ACCPAC Authorized Trainer
SuperCalc/Lotus 123
PBSC 900-885 W Georgia 682-56151
Lotus 1-2-3, Excel $200
PCTI 530-6673, Lotus 1-2-3 $100
PITMAN 1488 W Broadway 736-7848
Lotus 1 2 3 anywhere. $180/160
PRECEPT 755 Clark Dr. 255-3194
Electronic Spreadsheets $145
PROF. TRAIN., 1188 W Georgia 681-6865,
Lotus 1-2-3 $175, Excel Basics $195
ROSSI, DEGROOT & ASSOC. 1099-650 W Georgia, 681-0020
Lotus 1-2-3, Levels I & II
Macro Programming
SOUTH GRANVILLE 1652 W 7th 732-6858.
Call for dates Lotus 1-2-3, 2 wks $375
STM SYSTEMS CORP 684-7721
Lotus 1-2-3 Intro $175
STRACHAN COMPUTERS LTD #202-1780 Marine Drive, West Van.,926-6424 private or group lessons
Lotus 1-2-3 & VP Planner, Intro, Adv.,
SURREY (Newton Cont. Ed.) 594-2000
Lotus 1-2-3 $65
TLD COMPUTERS, #150-5951 No. 3 Rd.
Excel, $200; Lotus 1-2-3 $200
VANCOUVER SCHOOL BD., 736-7241
Lotus 1-2-3 Release 3 $80
VAN. COMM. COLL., 250 W Pender, 688-5944
Acct. with Lotus 1-2-3 $150
Intro to MS Works 2, $100
Using Lotus 1-2-3 $100
VCC CONT ED Certificate Prog. 324-5922
Intro to Lotus 1-2-3, $100
Intermed. Lotus 1-2-3, $100

## TELECOM

BCIT 3700 Willingdon, Burnaby, 434-1616
Data Communications Concepts.
Call for info and dates $100
PBSC 1386-1140 W. Pender 689-7272
Crosstalk $175
CAI LTD 581-6190
Intro to Voice Mail & Messaging: Private or Group Sessions, $100
CANADIAN MIND PROD 684-9525 Roddy Green
UBC CONTINUING EDUC., 222-5251
Concepts in Data Comm., $75
Info Resources Online Connecting to the New Electronic Database (4 Tues), 7 - 9 pm, Robson Square
Music Centre $100

## USING YOUR PC

ACCSYS Suite 205, 555 Thurlow 685-5342
DOS $100
BCTEL GROUP, Education Development Centre, 8200/day 299-3836
PC Getting Started, 1 day Jan 19 & Jan 26
PC Intermediate DOS, 2 day Feb 9
BCIT Full Time 432-8416 Part Time 434-1616
Understanding MS DOS
BCIT 3700 Willingdon Burnaby, 434-1616
Computing for the Timid $70
Understanding PC/MS-DOS $100
BURNABY SCHOOL BD, 299-4361
MS DOS/IBM Intro, $65
CAPILANO COLL. N. Van 984-4901
Basics of Micros, DOS 1 & 2 $100
Managing Your Hard Disk $100
CARIBOO COLL. Kamloops, 828-1616.
Intro. to Microcomputers $100
CENTRE FOR ADVANCED PROFESSIONAL ED. (800) 345-9249
Converting, Expanding IBM PC
Maintaining, Troubleshooting
COASTWAY SYSTEM TECHNOLOGY
208-2091 Spruce St., Vancouver 736-5088
Hard Disk Management $120
COMPUTERLAND 648-6000.
PC Literacy
COMPUTERPEOPLE
110-1178 W Pender 682-5421
Intro Microcomp, MS-DOS
COMPUTER STN 2190 Burrard 732-8621
Intro to MS-DOS, $100
COMPUTER TRAINING CENTRE, 100-20236 60th Ave. Langley 534-5777
Intro to MS-DOS $95
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Intro to IBM PC

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# COMPUTER PAPER CALENDAR

DRAKE #601 888 West Pender 688-6788
DOS, Intro, Advanced
FRASER VALLEY COLL, Abbotsford 853-7441
Intro to IBM PC & MS-DOS
GUILDFORD CONT ED Centre, 14577 - 108A Ave., Surrey 589-2221
Understanding MS-DOS $90
JUMP SYSTEMS Suite 430-650 W 41st, Vancouver 263-5867
Computer Systems and DOS, OS/2
KITSILANO NEIGHBOURHOOD HOUSE, 2325 W 7th, 736-3599
Intro to PCs and DOS $120
KWANTLEN COLL, Surrey 588-4411
Managing Your Hard Disk $75
LANGLEY COLLEGE, Langley 530-5411 Automated office training for the disabled: visually or hearing impaired, physically disabled. Call for info, fees and dates.
LANGLEY CONT ED 533-4227
Understanding MS-DOS $95
MICROAGE 3609 W 16th 222-1315
Intro to PCs/DOS, $175
NORTH SHORE CONT ED 988-5988
PESC 900-555 W Georgia 682-5615
Intro to PC, DOS 3.3 &4.0&..1,2 &5 $200 per day
PC Troubleshooting
Project Management: Timeline 4.0 2-day $450
Windows 3.0
PCTI 530-5873
Intro to DOS $150
PITMAN 1490 W Broadway 736-7848
Using MS/DOS days/eves. $180/120
PRECEPT 735 Clark Dr 255-3188
Intro to IBM $125/Power of MS-DOS $125
PROF. TRAIN 1165 W Georgia, 681-5903.
Intro to DOS $175, Windows $175
ROSSI, DEGROOT & ASSOC., 1088-650 W Georgia, 683-0020.
Intro to PCs, Intro to DOS, DOS Advanced
SOUTH GRANVILLE 1208 W 7th 732-8850
DOS 1 Call for dates $150
STM SYSTEMS CORP 684-7721
Intro to Computers $140 DOS Intro $175
STRACHAN COMPUTERS LTD. #202-1780 Marine Drive, West Vancouver, B.C., 926-5424
DOS, Maximizer Windows
SURREY (Newton Cent. Ed.) 594-2000
Intro to IBM $95
Intro MS-DOS $95
TLD COMPUTERS Richmond 273-6700
PC Basics $150
TRITECH COMPUTERS Delta 597-4777
MS-DOS 15 hrs. $99
UBC CONTINUING ED., UBC Microcomputer Lee, 222-5251
VAN. COMM. COLL. 250 W Pender St., 682-5844
MS/PC-DOS, Intro., Interm. $150
Intro to PC & DOS $150
VCC CONT ED Certificate Prog. 324-5922
Intro to DOS, Dec. 5 & 20 $150
Intermed. DOS, Dec 1 14 $150

## WORD PROC

ADVANTAGE COMPUTER, 535 Howe St., 685-5227
MS-Word Level I,
Excel Level I
Microsoft Word Level II,
Microsoft Word Level III,
Microsoft Excel Level II,
Aldus PageMaker Level I,
Aldus PageMaker Level II,
Adobe Illustrator, Level I,
Aldus Freehand, Level I,
MacDraw I Level I,
FileMaker Level 1
FileMaker Level II,
ADCSYS Suite 208 998 Thurlow 685-5342
WordPerfect $150
BCTEL GROUP Education Development Centre $200/day 293-3636
Word Perfect I, Jan 15 & Feb 2
Word Perfect II, Jan 29 & Feb 5
Word Perfect III Feb 19
BCIT 3700 Willingdon, Burnaby, 434-1615
Microsoft Word $161
WordPerfect $200
BCIT - Burnaby 464-1810.
Microsoft Word
BURNABY SCHOOL BD., 299-4361
MS Works,
$90
WordPerfect 5.0, Level II, $90
CAPILANO COLL. N. Van. 986-1911
MS-Word I, I $140
CARIBOO COLL., Kamloops, 828-1816
WordPerfect 5.0 Graphics $90
Word Proc. $150
CIPHUS ENTERPRISES Victoria, 386-8044
DisplayWrite 4 Intro, DisplayWrite 4 Adv
Microsoft Word Intro, Microsoft Word, Adv.
WordPerfect 5.1 Intro/Adv/Fast Track
COASTWAY 2501 Spruce St. Van 736-5008
WordPerfect 12 hrs, Microsoft Word 12 hrs, Advanced WordPerfect & Word, 8 hrs
COMPUTER EMPIRE 678-4162
WordPerfect, WordStar $145
Chinese WP $150
COMPUTER STN 2150 Burrard 732-8621
Intro to WordPerfect, $150
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Amiga User Group (PaNorAmA) BCIT Rm 120-1A General Meets 2nd Wed 7:30 Programmers 4th Wed 7:30. Bill Waggstaff 597-1746.
Apple/ABCCS Meetings location: Burnaby Lake Clubhouse, Burnaby Sports Centre, Sprott St. & Sperling Ave.
Apples B C Computer Society Computer User Group for all Apple users, call 275-4863 information line; for membership info Kiyo Masuda, 437-9935.
Architect User Group (Macintosh), Call Glen Schiller or Hal Gill, Style Computers 738-2181
Astute—Atari ST 1st Tues. 7:30 Hastings Comm. Ctr Dennis 420-8710.
ATARI USERS! Vanlan, P O Box 3614 Main Post Office Van, B.C., V6B 3Y6. Bill Sutherland 688-1450 Don Hatch 433-8055. Meets 2nd Wed. 7:30 Hastings Comm. Ctr., 3096 E Hastings.
Beaver Valley Commodore Club, 1st Tues., Montrose School Library Call John Vink 557-6426.
B.C. Regional Users Group Society of Hewlett-Packard Users. Call Terry 420-1277.
B.C. Unix Users Group Fall Dinner Meetings. Call 681-4479
Chilliwack Commodore Computer Club (C.C.C.C.) 976, Supporting Commodore Amiga, P.O Box 419, Sardis, B.C. V2R 1A7
Desktop Publishing User Group, Mon Jan 21 7pm Meets at Burnaby Hospital, 3644 Slocan/Van Call Karola Doner 926-4915
Data Processing Management Association (DPMA) Dinner meetings 4th Tues., every month Stanley Park Pavilion. Contact Frances Dickson 980-8658 to register or Gail Nichols 980-9533 for information.
FORTH-BC meets 7:30, 1st Thurs/month, Rm 1A-324 BCIT main bldg. Discussions, demonstrations and information for programming/applying FORTH (hardware and software).
Greater Victoria Personal Computer Users' Assoc PO Box 5308 Station B, Victoria V8R 6S4 General meeting, last Wed. Also, special interest group meetings 594-382-2842
Independent Computer Consultants Association, Box 828 Station A, Van., B C 986-2747 FAX 925-1336
Keyprs User Group/Vancouver Portable Computer Club, 3rd Mon. at Kwantlen College Richmond (DOS & GFC/M) 271-1316
Laboratory PC User Group, Rm 2J08, BC Children's Hospital, Vancouver 7:00 pm every 2nd Wednesday of the month $10/year 737 1305.
Macintosh Owners' ABCCS contact person, John Miller 433 1795.
MacWest Computer Society 2 monthly meetings for members, plus PD copy session. General Meetings 2nd Wed. 7:30 pm.
MacWest New User Meeting 3rd Wed., 8 pm, Guildford Pub. Lib. Surrey PD Copy owners 8 meeting Bob Scales 464-3648 Rolf Drommer 941-5785.
Monday-138 SWL Users Group, c/o Robert Anderson 1365 Monarpier St. Penticton, B C
Mission Computer Users Group last Tues. 7 pm, 33345 Second Ave. Mission Robin L. McCormick, 826-3600 Jenn Gale or Cindy MacGregor, 826-3600.
Maple Ridge Computer User Group, 2nd Tues of every month, M.R. Sr Secondary 7:30, J. Brehmer 463-6318.
NEC APC Users Group, Lee 986-5825.
NewViews User Group, 922-6188, FOCO, 1379 Laurier Hyde Creek Centre,
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Post Coc. Computer Club—Commodore, Amiga & IBM, 1st & 3rd Tues 7:30, Rm. 104 George Pearkes Jr Sec. School, 1250 Lassiat Ave., Port Coquitlam, Mike Evans 942-4366.
Smart User Group, Brian Wiebe 984-5985.
Society for Technical Communication. Call 682-2555 for info.
Software B.C., #804 1160 Melville St. Van., B.C 684-7432 meetings at Benedikt's Restaurant, 1177 W Pender St., Vancouver. Third Thursday of the month 5:30 PM.
T.I. 99/4A Computer B.C 99er Users Group, Every Thurs 7-11 pm, Cameron Rec Ctr. Bby Ron 522-2598. 1st Thurs Tutorials 2nd Thurs General, 3rd Thurs Tutorials, 4th Thurs Copying Prog.
TRACE (Richmond Atari Club), Thompson Comm. Ctre, 272-8788 1st & 3rd Mon. 7:30-9:30.
Vancouver AutoCAD Users Society BCIT Bldg. 9A, Room 115 1st Wed of the month, 7:30 pm. Contact Dave Teews, 930-6426, for info.

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Vancouver dBase Users Group, 2nd Wed, 7 pm. 800-1190 Hornby St. Van, 684-9311
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Vancouver Netware Users Group, Lee Lobbaert 275-3084 Meets 1st Mon.
Vancouver Portable Computer Club (VPCC), AMC 17, Jay Siegel, 4261 Lancelot Dr Richmond, B C., V7C 4S4 271 1816.
Vancouver PC Users Group, Science World auditorium, 6:30 pm 2nd Thurs. $2/$7 734-0060
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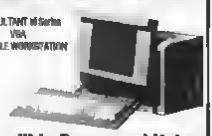
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| 16 | 23,015 | 23,757 | 31 | 43,747 | 46,186 |
| 17 | 24,022 | 25,078 | 32 | 47,037 | 51,511 |
| 18 | 24,874 | 26,400 | 33 | 48,117 | 52,832 |
| 19 | 25,954 | 27,721 | 34 | 50,309 | 54,146 |
| 20 | 27,082 | 29,042 | 35 | 51,849 | 56,466 |
| 18 | 26,297 | 26,274 | 36 | 52,749 | 56,786 |
| 22 | 28,518 | 31,002 | 37 | 53,872 | 58,119 |
| 23 | 29,727 | 28,375 | 46 | 55,102 | 59,404 |
| 24 | 32,286 | 34,366 | 45 | 56,262 | 60,758 |

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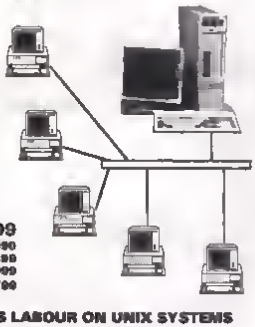
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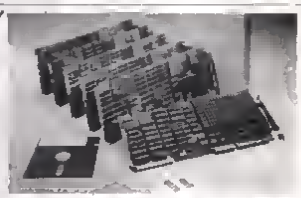
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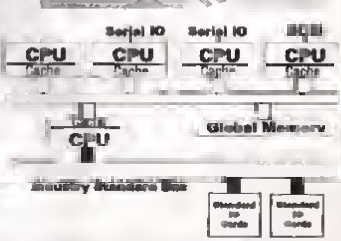
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**SEE OUR SYSTEMS AD page 4**

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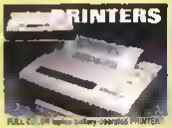
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JANUARY 1991

# ANOVATION

A Monthly Newsletter From ANO Office Automation

# THE REAL COST



*Now that the Goods and Services Tax is a reality, many small businesses have had an opportunity to lick their wounds and count the casualties. In this report we will take a look at some of the costs incurred by small businesses in implementing the GST, as well as ways to recover some of those lost dollars.*

## The Soft Costs

The hidden cost of this whole GST affair for the small business owner was the amount of time spent sifting through all of the GST paraphenalia accumulated over the course of 1990 - not to mention the cost of employing additional hours of an accounting firm to translate the data. Many of you will have even spent time re-evaluating your existing computerized accounting system.

Aside from accounting, these "soft costs" can be given very little intrinsic value. However, time means money, and the educational and research costs alone have been expensive.

## The Hard Costs

For anyone that turned to a computerized system to handle the GST, the hard costs are obvious - hardware, software, training, the learning curve, data entry time, and other sundry expenses. Those of you lucky enough to already have been computerized the sting is not nearly as bad - unless of course your accounting system was custom made.

## INSIDE THIS ISSUE


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One industry hit hard by the GST crunch is software developers Samco Software Inc., a local developer of accounting solutions for DOS, Novell, Unix/Xenix, and VAX operating environments, calculates they will have spent over 348 man hours in specing, re-programming, testing, and documenting GST changes. Not to mention the cost of preparing, packaging, and shipping updates to its clients across Canada. They estimate a net cost of close to $50,000 once the dust settles

## Write It Off

Unfortunately for Samco, very little of the $50,000 can be reclaimed through government incentives, however, there are a few areas where small businesses can

Aside from the 50% the first year, 50% the 2nd year standard write off for most software applications, up until December 1992, businesses that purchase cash registers, and certain types of computer equipment directly related to Point of Sale (POS), or inventory control systems will benefit from a capital cost allowance rate of 100% of the equipment cost.

As well, equipment that was purchased after December 1989 for the same purpose is considered FST exempt providing that you can provide an appropriate end-use certificate.

The third and final cost recovery tool being offered by Revenue Canada is a one time credit which must be claimed by the first full fiscal quarter of 1991. This credit is designed to help defray some of the costs incurred to implement the GST. Businesses can claim between $300 to $1,000 depending on sales volumes for any given quarter between January 1989 and April 1991, and the net amount of




taxable and zero rated supplies purchased during the same period.

To many this is very small pickings relative to the actual costs incurred. But its better than nothing at all.

## Computerizing Now

For most small businesses, now is as good a time as any to look at computerizing. An automated accounting or bookkeeping system can save countless man hours calculating your GST remittance.

Businesses that rely heavily on an inventory of real products will benefit from what is referred to as a perpetual inventory. In a nutshell, perpetual inventory allows you to monitor the status of goods in stock without having to do a periodic or physical inventory count. The benefit of this, aside from being an excellent financial management tool and more cost effective, is that you can claim your tax credits back quicker, thus improving cash flow.

Service industries also benefit greatly by computers. As with retailers and wholesalers, the service sector can track GST collected, as well as input tax credits with almost flawless precision - provided you have the right software of course.

## There's Still Time

If you have still got some undecided issues within your organization about the GST, we have provided a checklist (see Figure 1) for you to approach a qualified professional with.

As you may not be reporting until January 31, 1991, March 30, 1991, or December 31, 1991, there is still time to tie up those loose ends.

*We would like to thank the people at Samco Software for their invaluable contribution to this article.*

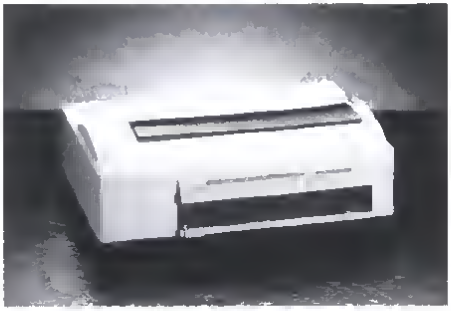
### GST CHECKLIST

- ✔ Take advantage of 100% yearly CCA for Point of Sale or Inventory Control
- ✔ Compute input tax credit for all purchases.
- ✔ Store supporting documents for 6 years for tax credit audit
- ✔ Handle zero-rated Goods & Services
- ✔ Handle tax exempt Goods & Services
- ✔ Handle taxable Goods & Services.
- ✔ Finance cash flow (if disadvantaged by GST)
- ✔ Continue to offer cash discounts
- ✔ File monthly, quarterly or annual returns
- ✔ Handle long term contracts overlapping 1990/91.
- ✔ Apply for transitional one time credit
- ✔ Track bad debts for GST tax credit.

*FIGURE 1*
*Make sure you've covered all the G S T. bases*

# HIGH QUALITY PERFORMANCE

*Canon introduces relief to the dot matrix duldrums*



## CANON BJ 300 / 330

When personal computers began popping up on desktops around the world in the early eighties, system administrators had little choice but to furnish them with loud, and overbearing dot matrix printers that produced subpar output. Generally speaking it was a matter of giving up performance for inadequate quality or give up quality (what little there was) for performance and sometimes even both were sacrificed.

As all mediocre things come to an end, so does the era of the dot matrix printer - introducing the 300 series of Bubble Jet printers from Canon. Designed to keep the noise of a stock exchange trading floor where it belongs, and stunning output back on the desktop, the BJ-300 (narrow carriage) and BJ-330 (wide carriage), are sure to please.

What makes these darlings so special is a unique print philosophy, patented by Canon, called Bubble Jet. You see with a dot matrix printer, up to 24 metal pins are used to punch into a fabric ribbon. The mechanisms required to produce the output not only cause a great deal of noise, but are incapable of producing the quality professionals became accustomed to with typewriters.

Bubble Jet on the other hand completely revamped printing as we know it. By utilizing a 64 nozzle print head, firing out tiny ink capsules, the BJ-300 and 330 are nearly silent. As well, the print quality is no more than stunning - this includes both text and graphics.

From the performance side, the 300 and 330 are quite simply magnificent. At a mind boggling 300 cps they can zip through even the most gruelling document without blinking. And this stands true for both text and graphics.

Just to give you an example we ran the WordPerfect PRINTER.TST file through the BJ-330, a Roland Raven 2417, and a Fujitsu DL3450. By the time the 2417 and DL3450 had barely a third of the print job completed, the 330 was already loaded and waiting to print again. Side by side the 330 not only outperformed speed wise but the crispness and accuracy of the combined text and graphics was no match for its counterparts.

Other features which make the 300 and 330 so attractive include quick and easy paper handling, compatibility with existing software, support for plain paper, fanfold, envelopes, and transparencies, and a wealth of upgrade options to personalize the printer to your specific needs.

"The 300 and 330 Bubble Jet printers, put quite simply, are in my opinion the best desktop printers money can buy." states Todd Drahoff, Manager of ANO's Corporate Systems Group, "The needs of business users, and that includes the health care profession, and engineers, have long been ignored. These two entries will now prove who's truly the King of the Printer Jungle."

*Strong words backed by two premiere printers!*

PROFESSIONAL

# TRAINING

## British Columbia Institute of Technology (BCIT)

| Date | Course | Course # | Duration | Fee |
|---|---|---|---|---|
| Feb 11 | dBase IV Level 1 | 21578 | 4 wks | $ 161 |
| Feb 11 | ACCPAC A/R | 21648 | 4 wks. | $ 161 |
| Feb 12 | dBase IV Level 2 | 10246 | 4 wks | $ 161 |
| Feb 12 | Lotus 1-2-3 Level 1 | 10130 | 4 wks | $ 161 |
| Feb 13 | WordPerfect Level 2 | 10065 | 4 wks | $ 161 |
| Feb 14 | Lotus 1-2-3 Level 2 | 10194 | 4 wks. | $ 161 |
| Feb 14 | WordPerfect Level 1 | 10026 | 4 wks | $ 161 |
| Feb 27 | Introduction DOS | 09991 | 6 wks. | $ 241 |
| Mar 11 | Ventura Publishing | 21630 | 4 wks | $ 161 |
| Mar 11 | ACCPAC A/P | 21656 | 4 wks. | $ 161. |
| Mar 12 | dBase IV Level 3 | 10260 | 4 wks | $ 161 |
| Mar 12 | Lotus 1-2-3 Level 2 | 10209 | 4 wks | $ 161 |

*Call BCIT at 434-1610 to register*

## ANO Professional Training

| Date | Course | Location | Fee |
|---|---|---|---|
| Jan 12 | Intro MS DOS | R/K/E | Call |
| Jan 26 | Intro to WordPerfect | R/K/E | Call |
| Feb 09 | Intro to MS DOS | R/K/E | Call |
| Feb 23 | Intro. to WordPerfect | R/K/E | Call |
| Mar 09 | Intro to MS DOS | R/K/E | Call |
| Mar 23 | Intro. to WordPerfect | R/K/E | Call |
| Apr 13 | Intro to MS DOS | R/K/E | Call |
| Apr 27 | Intro. to WordPerfect | R/K/E | Call |

*If your organization is looking for specialized training or require fully equipped classroom facilities, let ANO give you a hand. Talk to your ANO rep for further information*

*R = Richmond • K = Kelowna • E = Edmonton*

*Call your nearest ANO office for further information*

**Q.** I recently purchased a laser printer, and would like to set it up as serial instead of parallel. The installation manual explains how to run the setup function on the printer but does not tell me how to setup my DOS programs to use it. Please help!

**A.** This is quite a common problem for all serial printers. You see, DOS itself must first be setup to handle the communications (aka serial) port to handle output for an "LPT" device. This is done through the addition of the following lines to your AUTOEXEC.BAT file:

C:\DOS\MODE COMx = 96,N,8,1
C:\DOS\MODE LPTx = COMx

Note: C:\DOS can be replaced with the directory where your DOS programs reside. LPTx is equal to the next available printer port (usually LPT1, LPT2, LPT3, or LPT4), and COMx is the serial port which the printer will be attached to (usually COM1, COM2, COM3, or COM4).

Be sure that these commands preempt any menu system commands or commands which call up a batch file. If this is not done, chances are that the MODE commands will never get executed.

Should you have any questions for Tech Talk, please feel free to send them to:

**ATTENTION: TECH TALK**
c/o ANO Office Automation
110 - 11100 Voyageur Way
Richmond, B.C.
V6X 3E1

END

# TECH • TALK

*WITH*
*KEN NG*

# A 486 FOR ALL REASONS

AST Research was founded 10 years ago by three university students, determined to extend the life span of personal computers, while adding connectivity. Such products as the Sixpak Plus, RamPage memory board, 3270 emulator boards, and the CUPID-32 line personal computers, reinforced this commitment.

Now, 10 years later, AST has discovered a new way to provide more power to the people - the Bravo i486/25 business computer. What sets the Bravo i486/25 apart from the rest of the AST line is a completely integrated system board. By building the processor, memory, Super VGA video (800x600), mouse port, serial ports, and a printer port right onto one board, and reducing the number of pal chips required to operate the system, AST is capable of offering the system at a very attractive price - how does under $5,000 grab ya?

## BUILT TO PERFORM

At the heart of the Bravo i486/25 is a 25MHz, i486 microprocessor with an integrated 8Kb of cache memory and an 80387-compatible math coprocessor. These integrated features enhance the system's performance, making the Bravo i486/25 nearly two times faster than a 33MHz 386 computer.

Not only is the Bravo faster than an engineering workstation, it gives you more expansion and storage capabilities as well - without the hefty



THE NEW BRAVO

workstation price. The Bravo 486 doesn't lock you into a proprietary software solution either, so you can run the thousands of software programs available for MS-DOS as well as take advantage of the technical scientific, and custom applications running under UNIX and other workstations from Sun, Data General, and HP/Apollo.

## YOU NAME IT

For some time now, financial and business users have been relegated to slower 286 and 386 systems just because they didn't build buildings, reroute rivers, or map maps. Well now there is no excuse not to have the same computing power as an engineer.

The Bravo i486/25 will run your Lotus at lighting speeds, dazzle your dBase, make your Excel excite you, and give pure power to Paradox. All in all this new offering from AST will take any punch your software has to pull.

## SLEAK DESIGN

AST moved a few things around, and tucked in some skin to make the Bravo i486/25 a truly desktop personal computer. With a footprint that takes up 25% less desk space than a comparable Compaq Deskpro 485/25, you'll have more room to move.

As well, you won't have to reach behind your computer every morning to find the power switch, they've placed in front. A reset switch, which maximizes wear and tear on your system is up front too - of course it's recessed to prevent any accidental resets.

## AVAILABLE NOW

Anyone can blow their horns about a new computer, but few deliver when promised. AST and ANO can deliver this new product now - right when you need it. Available at all ANO locations across Canada, and backed by ANO's AST Authorized Service personnel, so you're guaranteed top notch service and support.

AST's Bravo i486/25 - A 486 For All Reasons

# THE BUBBLE JET PRINTING SYSTEM

*In the bubble jet printing system, characters and graphics are printed by firing ink drops at the paper from thin nozzles. When the ink in thin nozzles is rapidly heated, it produces bubbles that quickly expand and produces ink ejections. Heat is generated by applying power to the heating elements which are built into the nozzles. Each pulse serves a two-fold purpose.*

(1) First, when the pulse is applied, heat is generated and vaporizes neighbouring ink almost instantly.

The bubble which results generates a pressure wave which ejects an ink drop from the nozzle.

(2) Second, negative pressure is produced as the bubble contracts after the pulse ends. This draws fresh ink into the nozzle.

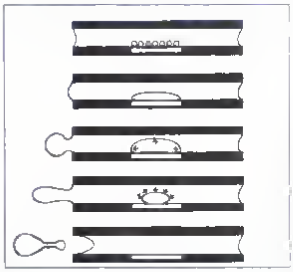
An important feature of this printing system is the simple construction of individual nozzles. This construction has the following advantages in addition to reducing manufacturing costs.

(1) It achieves high durability and enables to reduce the size of the print mechanism.

(2) It allows the nozzles to be much denser, and thus makes it possible to achieve higher print quality.

(3) It achieves non-impact quiet operation.

What this means is that the printer can be used in a far wider range of applications that is possible with other printers.



*Canon's unique Bubble Jet print system*

# Maximum Potential



The sales staff at Mantec Systems Inc. used to have a problem. With several salespeople on staff, and some working on the same accounts, it was impossible to keep track of where potential buyers of their software product stood in the sales cycle.

"We didn't have a good follow-up system. We had no idea who said what to anyone.' The result, says sales manager Gerald Chudyk, was lost sales.

Being in the software business himself, Chudyk had a pretty good grasp of the marketplace when he went shopping for a contact management program to keep better track of clients. He chose The Maximizer.

One of Chudyk's key criteria was flexibility. He has since tailored Maximizer to fit his business needs exactly. "Now I couldn't survive without it," he says.

At Mantec's Richmond, BC office, Maximizer contains a list of some 200 contacts. Chudyk has created his own screen within the program to display at a glance, all the information about a given contact that's important to him, including the next contact date, and the status of the account.

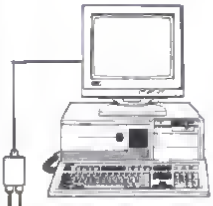
Their client list is an impressive one, including the likes of Rolls Royce and IBM. Customers pay $15,000 and up for Mantec's maintenance management software, so it's important to keep close track of them.

Chudyk makes constant use of Maximizer's description feature, which allows you to describe your contacts in literally billions of ways. As an example, he could call up a list containing all those companies that are in the auto industry, have sales of more than $100 million, were contacted twice in the past six months, and have indicated an interest in their product. A simpler example would be a list of all companies that require follow-up within a week.

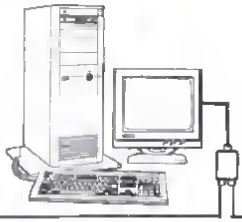
Other information which can be stored includes current address, phone numbers, industry type, income level, personal interests, co-workers, residence, birthday, anniversary, number of children, hair colour, favourite author. Maximizer allows you to go into as much or little depth as you want.

"I've been telling anyone who is trying to keep track of a large group of clients or contacts to use it," said Chudyk. "It's flexible enough to tailor to exactly what you're doing."

The Maximizer, a product of Richmond Technologies and Software, is sold at all ANO locations across Canada. For more information, call the office nearest you.



# Affordable Networking.



To anyone who believes that all big-capability PC networks demand big bucks, big hassles and big RAM, we offer the LANtastic Network Operating System.

You see, only LANtastic NOS gives you a long list of powerful features at a price even the smallest installation can afford. So you can link as few as two PCs, and grow to hundreds of PCs - without sacrificing capabilities or speed.

And only LANtastic uses the smallest RAM of any LAN. So you can run all your programs without springing for the high cost of memory upgrades

And only LANtastic NOS can be run on four different hardware platforms - with LANtastic 2Mbps adapters or LANtastic Ethernet adapters, as well as in a serial/parallel/modem version, or in a version that runs on selected third part adapter cards.

No wonder LANtastic has received so much industry recognition.

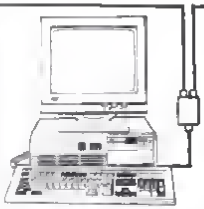


## LANtastic Cost Chart

| 2Mbps VERSION # Stations | Cost | ETHERNET VERSION # Stations | Cost |
|---|---|---|---|
| 2 | $ 695.00 | 2 | $ 995.00 |
| 3 | 1,030.00 | 3 | 1,470.00 |
| 4 | 1,365.00 | 4 | 1,945.00 |
| 5 | 1,700.00 | 5 | 2,420.00 |
| 6 | 2,035.00 | 6 | 2,895.00 |
| 7 | 2,370.00 | 7 | 3,370.00 |
| 8 | 2,705.00 | 8 | 3,845.00 |
| 9 | 3,040.00 | 9 | 4,320.00 |
| 10 | 3,375.00 | 10 | 4,795.00 |

NOTE Installation cabling, training, and setup costs vary from installation to installation A basic rule of thumb for calculating your costs would be $480.00 for the base 2 PC installation and $90.00 per additional station An optional on-site Network Security Support Program is available through all ANO locations Ask your dealer for details

*** All pricing F.O.B. Vancouver and is subject to change without notice Prices may vary from location to location



**FEATURES**

Peer-to-Peer topology
Low RAM overhead
Voice mail option
E-Mail built-in
Easy to use & setup
Disk caching
Networks laptops and modems
Supports diskless workstations
Printer sharing & spooling
Share CD ROM devices
Audit trail tracking
Multi level security
NetBIOS compatible
File & record locking

## LANTASTIC FROM ARTISOFT

# ANOTATIONS

## ANOTHER AUTHORIZATION

ANO Office Automation is proud to announce authorization as a service centre for AST Research personal computers - reinforcing our commitment to servicing what we sell.

To you the end user, this means faster turnover on service, and extended warranty option on new equipment purchases. As well, if you have an emergency whereby the unit requires immediate repair, ANO can arrange for the necessary parts expedited overnight from AST (should the parts not be in our inventory).

## WELCOME ABOARD!

In order to better service our existing customer base, ANO's head office in Richmond, B.C. is proud to announce the addition of Grant Berezan and Ian Cummings to our service and support team. Grant will be responsible for telephone software and hardware support, while Ian is a welcome addition to our on-site support team.

Welcome to the ANO family!!

## OTTAWA OFFICE

After many red-eye flights to Ontario, and dozens of cross country facsimiles, Toby Chu, Chief Executive Officer of ANO Office Automation is pleased to announce the opening of our new office in Ottawa, Ontario. "Ottawa is our starting point for a new growth plan we have implemented," exclaims Mr. Chu, "This means that we will be able to offer our government accounts the added dimension of an office in the federal capital."

A new office in Calgary is slated for mid 1991, with an office in the Maritimes also in the works. As well, ANO's head office in Richmond, B.C. was recently expanded by another 1400 sq. feet to accommodate our unprecedented growth pattern.

## YET ANOTHER ANNOUNCEMENT

With the 1990's being hailed as the decade of the PC network, ANO has formed the network Information Systems Group (NISG). Headed by Carmine Di Marco, this group of professionals will be responsible for the implementation and support of Local and Wide Area Networks, as well as PC to mainframe/mini communications.

As well, they will be testing and evaluating new networking products, to ensure total compatibility. Currently, the NISG handles networks operating under Novell, Banyan Vines and LANtastic.

END

## Reader Response Card

Contact: _____

Position: _____

Company: _____

Address: _____

City: _____

Prov: _____ Postal Code: _____

Phone: _____ Local: _____

Fax: _____

Please send me ANOVATION monthly. ☐

Please have an ANO Rep contact me: ☐

Please send me more information on:

- ☐ Artisoft's LANtastic
- ☐ Canon BJ 300/330
- ☐ Bravo i486/25
- ☐ Canon Laser Printers
- ☐ The Maximizer
- ☐ ANO Office Automation
- ☐ ANO Training
- ☐ ANO On-Site Service

Suggestions. _____

ANO OFFICE AUTOMATION

Please mail to the ANO office nearest you

ANO RICHMOND
#110 11100 Voyageur Way
Richmond, B.C. V6X 3E1
Ph: (604) 276-8898

ANO VANCOUVER
#190-840 Howe Street
Vancouver, B.C. V6Z 2M1
Ph: (604) 681-6185

ANO BURNABY
3571 Kingsway
Vancouver, B.C. V5R 5L9
Ph: (604) 432-7077

ANO VANCOUVER ISLAND
#2 1026 Johnson Street
Victoria, B.C. V8V 3N6
Ph: (604) 385-0254

ANO TORONTO
Unit #1 2nd Floor
225 Esna Park Drive
Markham, ON L3R 1H3
Ph: (416) 479-1308

ANO EDMONTON
10301 106th Street
Edmonton, AB T5J 1L7
Ph: (403) 429-4990

Other [illegible]

# 1991 PACIFIC RIM COMPUTER & COMMUNICATION



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EXHIBITOR INDEX
WHAT'S NEW
EXHIBITOR LISTINGS
PC NETWORKS
MAC NETWORKS
UNIX SHOWCASE

# SHOW GUIDE

# The Networking Connection

ANIXTER STOCKS IT!

## From cables to connectors, Anixter stocks thousands of networking components ready for immediate delivery.

Anixter stocks all the hardware you need to network just one department, a building, or even a complete complex.

We have the products – cables, cable assemblies, connectors, outlets, tools, test equipment and electronics.

We have the partners – IBM, Digital, Amp, Northern Telecom, Nevada Western, Belden and many more

We have the inventory control system – an on-line, real-time business information system which assures that your items are in stock and available for 24-hour shipment



And we have the people – ready, willing and able to help you with expert advice on any networking project.

To make the right connection with any of our 17 locations across Canada, just check the Yellow Pages under "Wire".

ANIXTER®

Wiring Systems Specialists

Voice • Video • Data • Power

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# Welcome





Welcome to the 1991 Pacific Rim Computer & Communication Show.

Southex Exhibitions is proud once again to bring you the state of the art in computers and communication. Feast your eyes on the latest in technology to solve all your business needs.

The GST is on everyone's mind now that it has been passed into law. Look around the show for a number of vendors selling accounting solutions to help deal with this complex new tax.

Networking continues to be a rapid growth area of the computer industry. Companies which a few years ago bought one computer to do their accounting, are increasingly integrating computers into other areas of their business. Networks help to combine the power of individual computers into a whole that is greater than the parts.

Multi-media is another hot topic this year. Computer vendors are bringing together computers, sound and full-motion video to create powerful impact messages for education, entertainment and marketing.

This year, we draw special attention to the Unix Showcase. Unix is an operating system that is growing in leaps and bounds because of its benefits in the areas of multitasking and multiuser computing. Unix is the operating system of choice for many of today's powerful workstations.

Again this year we would like to thank the Canadian Information Processing Society for its support in sponsoring the show. It is again putting on a number of timely and informative seminars on various aspects of computing. See the back page for a listing of the seminars.

Finally, we would like to thank show and facility staff as well as our official suppliers, who have helped make the Pacific Rim Computer & Communication Show the largest and most exciting "one-stop solution" venue for the business community in Western Canada.

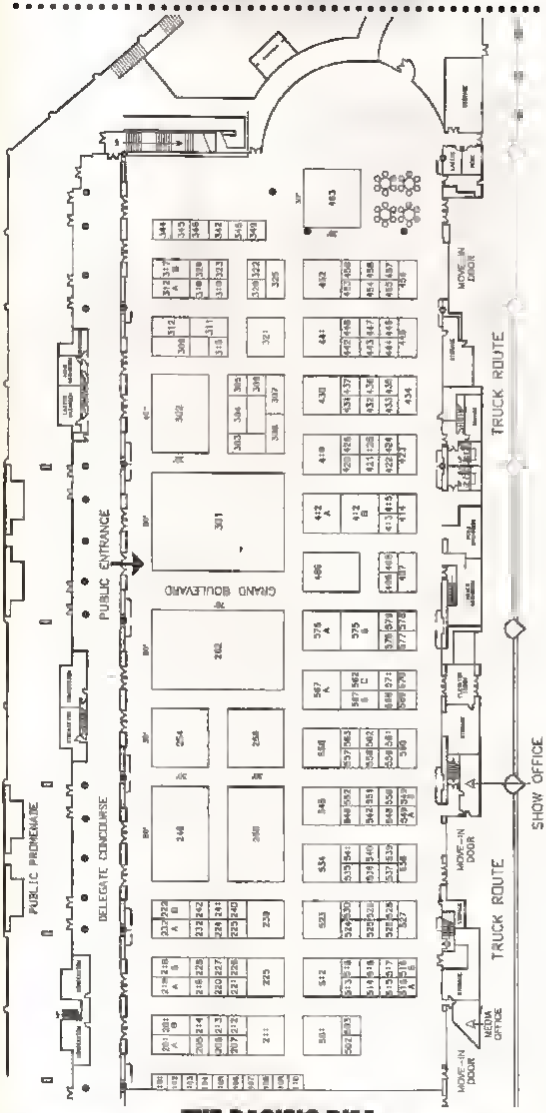
Maryenn Scheldars Richenda Crawford

Maryenn Scheldars
Show Manager

Richenda Crawford
Exhibit Sales Manager

The 7th Annual Pacific Rim Computer & Communication Show is produced and managed by Southex Exhibitions, 4285 Canada Way, Burnaby, B.C. V5G 4E7. Show Manager is Maryenn Scheldars.
The Pacific Rim Computer & Communications Show Guide is published as a supplement to the January 1991 issue of *The Computer Paper*. 8-3551 West 4th Ave., Vancouver, B.C. V6R 1P2. Copyright 1991 All rights reserved. No part of this publication may be reproduced without written permission from the publisher. Second class mailing registration number 7718. Information provided in the exhibitor listings was provided by the exhibitor companies. Printed by Transcontinental West Printing Ltd.

# Floor Plan




## THE PACIFIC RIM COMPUTER & COMMUNICATION SHOW at the Vancouver Trade & Convention Centre

## JANUARY 14-16, 1991

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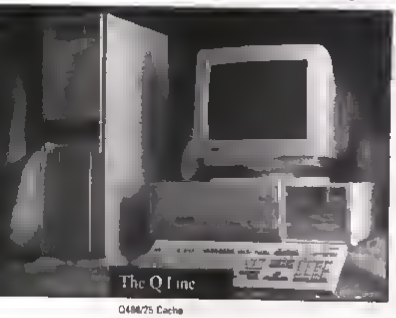
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# Q: What business computer means business to your business?

# Answer: Q.

At last, an IBM-compatible business computer that answers questions rather than asks them. Our new high performance Q computers are designed and engineered in North America to meet the demanding needs of today's businessman and woman. If your business means as much to you as we think it does, a look into Q business computers may be the best business decision you will make. For quality, high performance, and surprising affordability, Q stands apart from the rest in the field and is backed up by a two-year limited warranty and a service department that makes sure your business never has to wait.




Q486/25 Cache
Q386/33 Cache
Q386/25 Cache
Q386/20 Slimline
Q386/16 SX
Q286/12 Slimline

If you are in business to stay, stay with Q for the answers. Q Personal Business Computers. Quality by design. Award-winning. FCC and UL approved.

See us at Oxford Computers (Caulfeild Village, West Vancouver. Telephone 922-2447), or visit our downtown showcase today (Suite 304 - 700 West Pender Street. Telephone 685-7003).

Dealer inquiries are welcome.

*The Business Computer that Means Business.*

See us at the 7th Annual Pacific Rim Computer and Communication Show, Vancouver Trade & Convention Centre January 14th 16th, 1991

**See us at Booth #317B.**

# What's New

## Group Phone, Anyone?

Among the more exciting products being shown at this year's show is the group teleconferencing software (GTCS) developed by Bell Northern Research in Ottawa. This software ties any number of personal computers together over telephone lines, and allows the users to share and amend any text or graphics files to scan in full-color stills or to input from a video camera or VCR.

This product will be demonstrated by Interactive Technologies Inc. of Vancouver, which has obtained exclusive distribution rights for B.C., Washington and Oregon, and has rights to distribute elsewhere as well. Heading up Interactive is George Wootton, former president of Douglas College in New Westminster, B.C.

The GTCS software won first prize for "Most Significant Advance in Audiographic or Computer Conferencing" at the prestigious Telecon IX Conference in San Jose, California in October of 1989.

This group teleconferencing software was used at the World Economic Summit in Toronto in 1988. Each of the leaders had the software available on the desk, and was connected to staff in other rooms, for immediate communication as the meetings progressed.

None of the seven principals at the Summit was available for comment on the product at press time.

Contact: (604) 682-2034.

## GST Solution

Among the Alberta-based companies at the Show is Comsoft, which will be showing its Abacus accounting software. Comsoft, says spokesman Marshall Kushnuruk, was first on the market with a package that could handle the GST. Its product was available last summer, long in advance of GST implementation.

Comsoft is headquartered in Edmonton. In B.C., call (604) 688-8433.

## Award-Winning Boards



Q by Javell is a new Vancouver-based line of microcomputers that makes its debut at the 1991 Pacific Rim Computer & Communications Show. Featuring an award-winning motherboard design by the Motherboard Factory of California, Q by Javell's computers are also assembled in that state. The company, Javell Enterprises International, is targeting the corporate market. Its computers will be marketed against high-end U.S. machines, but are more reasonably priced, according to company spokesman Rob Titerle. The line should be of interest to small business, too, he said, including "those who don't have the money for a Compaq or even an AST."

Q by Javell has a full line of machines, including a slimline 286, 386-SX, 386 and 486. The 386-SX slimline comes with 2MB of main memory (expandable to 32MB), 64K RAM cache, built-in 1024 by 768 VGA (with Canadian-built ATI chipset), and 1 2and 1 44 floppy drives.

These computers come with a two-year limited warranty on parts and labor.

The company welcomes enquiries from dealers throughout B.C. Contact: (604) 685-7003.

## Instant Business Cards



Oops! Ever been on your way to an important meeting, only to find you've left your business cards at the office or at home? What to do? Go back and be late, or smile profusely as you explain why you don't have a card?

Whether or not this has ever happened to you, there's a new product on the market that can remedy this and many similar scenarios. It's called Card Express, and it's a vending machine that produces instant business cards, invitations, "get well" wishes, thank you's, notices and so on.

And it's being demonstrated at the 1991 PacRim show by Vancouver-based Vend-U-Print.

Card Express is a product that claims to be customer-friendly. All you do is deposit your money, and follow instructions to create your own language, card size, layout and typeface. With touchscreen technology, you can program your selection in minutes. Languages include English, French, German, Italian and Spanish. The machine even provides you with a receipt.

Card Express is manufactured by Interpro Lab Inc. of Montreal. Vend-U-Print has distribution rights for B.C. and part of the Pacific Northwest. Contact: (604) 657-7556.

## U.S.-made, Offshore Price

Among the companies premiering new products at this year's show is Micro Supply (Canada) Ltd. The company is introducing a new line of U.S.-made 286, 386 and 486 systems, and will also specialize in network servers and modems.



Manufactured by Micro Supply Inc. of San Jose, California, the line will be offered as high-end systems, with an offshore price tag. Micro Supply (Canada) opens its doors in January, and welcomes dealers, initially in B.C. and then across Canada. The company's headquarters is Richmond, B.C.

At its booth, Micro Supply will be demonstrating a voice-activated card that understands DOS commands, as well as a laser mouse card. Contact: (604) 273-9119.

## GST: The Taxman Cometh

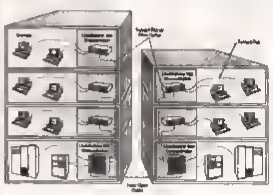
Yes, Canada! There *is* a GST!

For those businesses wishing to have a little light shed on accounting solutions for the GST, a visit to the World Trade & Convention Centre in mid-January might well be in order. A number of software companies and vendors offering accounting packages with GST modules will be at the 1991 Pacific Rim Computer & Communications Show.

Among the companies that would be happy to talk to you about GST accounting solutions are Advanced Business Microsystems, Comsoft, Great Plains Software and PowerSoft Systems.

## 3Com Links for WANs

*LinkBuilder Networks*



3Com Canada Inc. has announced availability of its new LinkBuilder ™ manageable hub product line. The LinkBuilder products provide customers with a flexible tool to build system solutions spanning the network from the desktop to the Wide Area Network (WAN).

The LinkBuilder family of products expands 3Com's connectivity offerings to include manageable hubs and fiber optic solutions. Based on SynOptics' LattisNet ™ System 3000 architecture, LinkBuilder is available from 3Com's worldwide network of

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# What's New

resellers and distributors in a variety of configurations with the base unit starting at US$1,995. 3Com's LinkBuilder product line provides customers with a standards-based product, supported by the company's expertise in networking and connectivity for local and wide area networks.

For further information, visit the 3Com booth at the Show, or call (604) 682-3266

## This & That...

• Lynxx Microsystems has taken over the network division of Softrak Systems. Former Softrak employees Mike Wolfe and Ian Fraser have moved over to Lynxx.

• A number of exhibitors at the show will be holding free draws at their booths for a variety of products and services. Among the list are VMS Vancouver Micro Support, Syspro/Group West, Strachan Computers, and Vision Presentations. It's certain there will be others so come with your business cards and keep your eyes open!

• Supply & Services Canada will be demonstrating its "Open Bidding Concept," part of the Procurement Opportunities Board. Visitors will be able to view bid opportunities at the moment they arise. This would be of interest to businesses seeking to fill govern-

## Great Plains Announces Canadian Payroll, GST Update

Great Plains Accounting Series has been upgraded to version 5 4 to deal with the GST. They also have added a new Canadian Payroll module that integrates with the other modules of their accounting series. Priced at US$795, the program will be available immediately for MS-DOS and Macintosh environments. A Unix version is to follow. For more information contact Great Plains toll-free at 1-800-456-0025

## Double Your Hard Drive



Vertisoft System's DOUBLEDisk offers a PC user a much easier and less expensive alternative to doubling the capacity of its existing hard disks. The program works "on the fly" automatically to compact and uncompact files as they are being used. Typical savings result in a doubling of disk capacity from the $139.95 utility. The photo above shows "DDIR", a directory utility window illustrating the amount of space saved by using DOUBLEDisk. The product is being distributed in Canada by J.B. Marketing 1-800-267-2424

## Sharp New Laser Printer



Sharp Electronics of Canada will be showing a newly released 16-page-per-minute laser printer combining a small footprint with increased productivity. The JX-9700 is one of the first laser printers to offer this type of speed and compact size at a competitive price. The laser printer comes standard with HP, Epson, IBM Graphics Printer, IBM ProPrinter, and Diablo 630 emulations and a parallel and serial interface. (416) 890-2100

## Laser Sets Sights On PS/1

VTech Laser has announced a competitively priced 286 computer aimed at the same market targeted by IBM with its PS/1 computer, the home market. The Pal286 is a 12 MHz 40 Mb hard drive computer with a two-year warranty and two expansion slots. A similarly configured machine from IBM could cost up to three hundred dollars more, come configured with only a 30 megabyte hard drive and lack the expansion slots. The Pal286 comes with GeoWorks Ensemble, a new graphical user interface which is wanning rave reviews in the computer press. (See January 1991 edition of *The Computer Paper* for a review.) This computer is on display at the Strachan Computer booth. They will be giving one away at the end of the show. Drop by their booth and enter their draw. (604) 984-8500

## QMS Drops Price On 11" X 17" Laser Printer

QMS recently lowered the price of its popular 11" X 17" laser printer from $17,995 to $15,995. The QMS-PS 2220 laser printer supports 11" X 17" PostScript printing and comes standard with two 250-sheet input bins and a 100-sheet direct feed input tray.

This printer has been popular with newspapers, and businesses with large-sized output needs. According to a recent survey of PostScript printers done by *P.C. Magazine*, the PS 2220 is the fastest printer currently available and shows ratings well above the speed offered by other vendors. The PS 2220 is available only from QMS Canada. (800) 361-3392

## Fax Communications For Unix Users

Faximum Software Inc. is offering Unix computer users the ability to send faxes directly from their workstations. The program claims to offer ease of use and powerful features for SCO Unix and Xenix, Open Desktop, Interactive 386/ix, AT&T Unix System V/386, Sun-4 and other Unix systems. The software is compatible with all Group II fax machines and supports HP LaserJet, HP DeskJet, PostScript and Epson FX laser printers. See the Trainux booth for details. (604) 925-3600


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Jan. 14, 15 & 16, 1991.

Manufacturer and distributor of Fujikama computer components and peripherals. Well established in Eastern Canada, the U.S., Europe, and the Far East, Fujikama has recently opened a new distribution facility in British Columbia. Specializing in 286/386/486 motherboards, VGA Cards, Controller Cards, Hard/Floppy Drives and Super VGA Monitors, we also carry a complete line of system units and laptops.

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# Exhibitor Listings

**Software BC**
**101**

Software BC/CADAPSO represents the computer software and services industry locally, provincially, nationally and internationally. Membership applications will be available for software developers, service providers and anyone interested in the computer software and services industry in BC. We also invite members of the press, government, financial community and computer users to some by our booth. Please drop off your business card for the draw for some of the world-class software packages developed by Software BC/CADAPSO members.

**Interactive Technologies Inc.**
**102**

Interactive Technologies Inc will be demonstrating GTCS, the award-winning group teleconferencing software developed by Bell Northern Research. Through the shared screen concept, any site can simultaneously introduce slides, documents, photographs or annotations that are visible at all sites on VGA or CADCAM monitors. Transmission is over standard voice and data networks.

**PowerSoft Systems**
**107**

PowerSoft Systems develops and markets "PowerPay," a powerful payroll program developed especially for Canadian businesses. The products are designed with ease of use in mind. You should be able to learn and operate PowerPay in less than thirty minutes. PowerPay has a suggested retail price of $89.95. For more information, call (604) 432-7077.

**BCIT**
**108, 109, 110**

BCIT is an innovative and flexible advanced technology enterprise that focuses on those initiatives that increase entrepreneurial activities within the province. In addition to providing a highly trained workforce, the Institute facilitates technology transfer by providing innovation industrial assistance and contracted applied research. The Institute offers its expertise and resources in specific technological areas and develops applications for British Columbia business and industry.

**Supply and Services Canada**
**201A**

Supply and Services Canada (SSC) will be featuring on-line demonstrations of its new Procurement Opportunities Board, a new initiative of the Department's Open Bidding Concept. Visitors to the booth will be able to view Federal Government bidding opportunities electronically. In addition SSC will have literature and in-booth marketing assistance sessions along with information on "How to Do Business with the Federal Government."

**WKK Systems Limited**
**201B**

WKK Systems Limited is dedicated to providing the personal computing market with quality name-brand equipment and superior personal service. Our product line spans the entire range of PC products, from the Everex cube 486 EISA file-server to scanners, Fax/Modems and Macintosh peripherals. The aim of our company is to ensure that each client receives the appropriate combination of products and service to guarantee satisfaction. We offer the "Total Solution."

**Eggheat Discount Software**
**205**

Eggheat Discount Software is North America's largest retailer of personal computer software. We stock 2000 items of MS-DOS and Apple computers including a wide range of accessories. Eggheat offers full customer service and demonstration facilities. Our 4 area stores are: Downtown 688-9994 W. Broadway 731-6255, Burnaby 432-8633, Richmond 273-9770.

**High-Tech Express and Distribution**
**206**

High-Tech Express is a transportation company that specializes in the movement of high value sensitive commodities such as computers and medical equipment. Our professional experienced staff, combined with a full complement of air-ride vehicles allows us to provide safe, secure and punctual service North America-wide.

**Calema Consulting Group Canada**
**207**

Calema Consulting Group provides a fully integrated multiuser accounting/information system. Available modules: Accounts Payable, Accounts Receivable, Costing, Equipment Rental, General Ledger, Inventory Control, Market Manager, Order Entry, Point of Sale, Process Production, Purchase Orders, Serial Number Tracking, Works Orders. The system is G S T ready. Phone: (604) 299-7795.

**Cantel Inc.**
**211**

Cantel - The leader in mobile communications in Canada, at work continuing to provide quality cellular and paging services.

**Advanced Business Microsystems, Inc.**
**212**

Advanced Business Microsystems (ABM) provides advanced accounting and MIS systems for use in any business, throughout Canada and internationally. Our Platinum Series features MIS and custom reporting capabilities that make it more than just a normal accounting system, but a detailed information management system.

**Kelly Temporary Services Ltd.**
**213, 214**

Kelly Temporary Services is a full-service corporation providing temporary employees in the areas of technical, office automation, clerical, marketing and light industrial support. Kelly has distinguished itself in


GST ??

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Gouge 'em Slowly Tax
Grand Scheme Tax
Go Slow Tax
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### P.I.C.S. Photo Ident Card Systems Ltd.
**218A**

Photo Ident Card Systems Ltd. is a dealer appointed to sell and service the new Kodak Video ID Products P.I.C.S. have been innovators in card technology identification and security systems for over 23 years. We also manufacture vinyl credit cards, mylar plastic pouches and laminating supplies and equipment.

### Comsoft Inc.
**218B**

The Abacus family of integrated Accounting Systems from Comsoft includes three unique programs

Abacus EL is a fully functional entry-level system which includes a comprehensive bookkeeping primer

Abacus I is a fully integrated single-user system designed to handle most small-business accounting needs

Abacus II sets the standard in multi-user accounting systems and includes such capabilities as Job Estimating/Costing and Inventory/Order Entry

In addition to the other features in each system the Abacus family of accounting systems is designed to elegantly handle the Goods and Services Tax, both in receivables and payables

### Telinfomatic Inc.
**219**

Telinfomatic Inc. is the publisher of Business Connections Canada's national bilingual directory of business products and services. Listings can be found alphabetically by company name and also by business classification. The directory is available in two sizes: the Reference edition (8-1/2"x 11") and the Executive edition (5 4/5x8 3/5"). Telinfomatic also publishes the Official Fax Directory and is the agent for the UniTel Telex Directory and Jaeger and Waldmann International Publications

### Maclean Hunter Technology Group
**220**

Do more than reach the computer and information technology market. Cover it thoroughly with the Maclean Hunter Technology Group of publications. Canadian Computer Reseller a bi-weekly news magazine provides resellers with the information they need to understand what is happening in the industry. Serving VARs/VADs, system integrators and consultants.

Canadian Datasystems a monthly magazine provides in-depth analysis of trends and developments. Serving professionals in information systems/data processing and telecommunications.

Office Systems & Technology a new magazine serving the needs of executives and managers in business and government organizations using information technology

### ACR Access Computer Rentals Inc.
**221**

Access Computer Rentals provides computer hardware to end-users on a Monthly, Weekly or Daily Rental basis. Product lines carried are all IBM MS-DOS and compatibles and include brand names such as IBM, Compaq, Hewlett Packard, NEC, Toshiba and others. Types of products include XT, AT286, AT386 Desktops and Laptop Computers, Network Workstations and Servers, Laser, Dot-Matrix and Daisy-wheel printers. Telephone (604) 255-7342

### WordPerfect Corporation
**225**

Developers of WordPerfect, the best-selling word processing software; PlanPerfect, a WordPerfect-compatible spreadsheet; DataPerfect, a menu-driven database; WordPerfect Office, a combination of desktop utility programs with electronic mail and scheduling; DrawPerfect, a business presentation graphic package; and LetterPerfect, a low-end word processor. Network and international versions of WordPerfect Corporation products are available for a variety of machines.

### Comshare
**226**

Comshare, Inc., a $100 million international software vendor, provides the market-leading executive information and decision support system software products. Commander EIS allows executives to access critical performance information with a touch screen or mouse. It includes five applications: status reporting, investigation and analysis, strategic news, navigation, executive reminder and an interface to electronic mail system

### UniTel Communications Inc.
**227**

UniTel, Canada's National Telecommunication Carrier, has been a long-time provider of innovative cost-effective telecommunication network solutions. UniTel provides FaceRoute (facsimile service), Broadband (private voice service), Mach III (integrated voice/data/image service), FastPac (packet switching) and a wide variety of other voice and data communication services

### National Pagette
**228**

National Pagette is the leader in the communications industry with a cross-Canada paging network as well as extensive B.C. coverage which includes Lower Mainland, Vancouver Island and Interior of B.C. Our answering service offers professional service at competitive rates.

### Interworld Electronics & Computer Ind. Ltd.
**232A**

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### Graphically Speaking
**2328**

Presentation graphics products and services will be displayed by the leader in this market, Graphically Speaking. We specialize in the production of presentations using multi-media, 35mm slides and overhead transparencies on both IBM and Apple computers.

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### Compu-Power Controls Inc.
**233**

Compu-Power Controls Inc. provides Sales, Service and Distribution of Computer Power Protection equipment. We offer a full range of Emerson Uninterruptible Power Supply Systems (U.P.S.) ranging from 150VA up to 625KVA three-phase systems. We also carry a comprehensive product line of surge suppression, voltage regulation and power distribution units. Look for us at the Emerson Computer Power Booth #233

### Cadence Computer Design Inc.
**234**

Cadence Computer Design Inc. is a Western Canada company with headquarters in Vancouver and a regional office in Calgary. Cadence has evolved to become the most prolific local area network installer in Western Canada. It is also a software development house and currently has software in North America-wide distribution. Cadence provides customized SQL, Microsoft Windows and Presentation Manager applications written in Microsoft C as well as ACCPAC customization and ACCPAC companion products written in ACCESS C. The Vancouver office is located at 3rd floor 1681 Chestnut Street. Telephone (604) 733-7633

### Fountain Software Ltd.
**235**

Complete software for conveyancing documents needed by lawyers and notaries in B.C. to increase production and eliminate stress. Word processing not needed. Includes GST calculations. No memorization of function keys or procedure needed. Runs on MS-DOS IBM or compatible.

### Ashton Canada Inc.
**239**

Ashton the wiring system specialists focus our product inventory to service the needs of the Physical and Data Link sectors of the Open Systems Interconnection Model. Ashton distributes products which include cabling systems, hubs, intelligent concentrators, network interface cards, terminal servers, internetworking devices and network management software. Partnering with Ashton to supply products in the Data Communications Market are IBM, Belden, AT&T Systems, Amp, DEC, Novell, Western and Siecor

### Alpha Technologies Ltd.
**240**

Canadian manufacturer of CSA-approved UPS backup power systems, voltage regulating line conditioners and DC power systems used to protect computers, business telephones and data equipment from power problems such as blackouts, brownouts, spikes, surges and electronic noise

### Barr Business Machines Inc.
**241**

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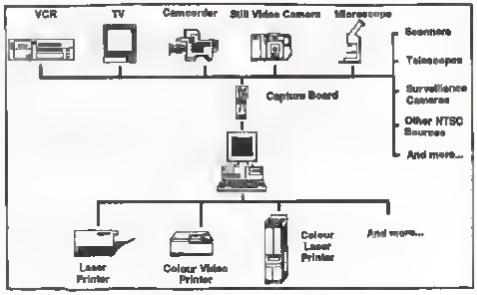
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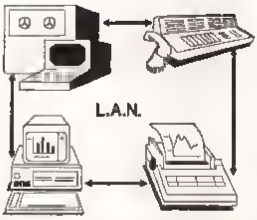
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### Mentek Systems Corp.
**242**

Mentek Systems Corporation is a manufacturers' representative and distributor of quality, dependable PC compatible computers. We offer a full line of 286, 386 and 486 units including the new extended industry standard (EISA) bus. Our sales representatives are all friendly, reliable professionals with technical background to provide our dealers with the best of service.

### Panasonic (Matsushita Electric of Canada Limited)
**246**

Panasonic is a brand name of Matsushita Electric of Canada Limited (Melca). Matsushita is a leading manufacturer and supplier of electronic goods, including a full range of computer equipment, copiers, electric typing systems, phone systems, cellular phones and point-of-sale equipment. Matsushita head office is in Mississauga, Ontario. Telephone (416) 624-5010.

### Zenith Data Systems (Cnnada)
**250**

Zenith Data Systems (Canada) a Groupe Bull company has manufacturing and sales facilities in portable and desktop microcomputers and monitors for both single and multiuser applications in more than 30 countries. Innovation has been and continues to be the driving force behind every product Zenith Data Systems engineers—from the technologically advanced ESA-based 80386 & 80486 desktop products through to our new VGA SlimePort laptop. To take a closer look at the company and products with an established reputation for innovation, quality and value, Zenith Data Systems (Canada)—join us at The Pacific Rim Computer Show.

### Brother International Corp.
**254**

We will feature our complete line of dot matrix and laser printers including our new 4 page per minute Postscript laser. Also featured are Brother a full line of electronic typewriters and facsimile. The Brother electronic lettering systems and full color copiers will also be displayed.

### Mitsubishi Electric Sales Cnnada Inc.
**258**

Mitsubishi will be displaying highlights of our extensive product line. Of special interest will be S340-10 a near-photographic quality sublimation colour printer MH216CD 400 p.i. Page Scanner-perfect for Desktop Publishing HX7920 1600 x 1200 High Resolution Monitor-the newest standard in Hi-Res Graphics.

### Sharp Electronics of Cnnndn
**262**

Sharp introduces its latest First Colour TFT LCD Laptop Computer PC-8501. It displays 256 dazzling colours. New 386 laptop and notebook computers featuring 120MB HDD, 20MHz 386 SX model PC-5751 and PC-6641 notebook, weighs less than 6lbs. Also with 20MHz SX processor. Other products will include colour scanner and the new professional liquid crystal colour projector model XG-1000. A new laser printer JX-9700 18 page per minute. Its local area network (LAN) high printing requirement purposes. As well some and ens our wide range of copiers, facsimiles, and electronic organizers.

### Toshiba of Canada Limited Information Systems Group (ISG)
**301**

Toshiba Information Systems Group is Canada's leading supplier of portable microcomputer products. In the office or on the road, for the student, home-user or experienced business power-user, Toshiba's Canada's "first family" of portable computers.

### Roland DG Canada Inc.
**302**

Roland DG Canada is the exclusive Canadian supplier of Data train computers and monitors, Raven dot matrix and laser printers, and Roland pen plotters, thermal plotters and Camm-e. New for this show: 386 and 486 personal computers, 19" colour monitors, expanded line of 24-pin printers, flatbed plotters and hand-held signcutter.

### Data Terminal Mart
**303**

Data Terminal Mart is one of Canada's oldest resellers of computer equipment. Representing leading manufacturers such as Compaq, Hewlett Packard and NEC, DTM offers its clients a wide variety of hardware to best suit their needs.

DTM also offers software solutions from Oracle, Great Plains and networking applications from Novell and SCO/XENIX.

### NeXT Computer Inc.
**304**

NeXT Computer Inc., founded by Steve Jobs (co-founder of Apple Computer) develops and manufactures a line of UNIX-based computers and applications. NeXT products feature integration, connectivity and advanced technological aids for productivity in business, education, science, publishing and more. Canadian sales office 683-9199.

### Trainix
**305**

Trainix is the leading source of UNIX training in BC. The company has been designing and teaching UNIX and C courses publicly through universities and on-site since 1984. Trainix is also the SCO Authorized Education Centre for BC. Instructors will be on hand to discuss course materials and curricula.

### Verketing
**306**

"Solutions for Manufacturers in UNIX & DOS" is the theme of the booth. Exhibited will be a UNIX-based data collection system which combines touchscreen and bar code technologies. Also being shown is an MRP2 software solution running on DOS, which is suitable for small to medium scale manufacturers.

### Lynxx Microsystems Inc.
**308**

Lynxx Microsystems Inc. is a full-service organization providing solution sales, training, technology problem-solving, service support and consulting. Major business areas include: Point-of-Sales, distribution accounting, system integration and networking of UNIX and DOS based (Novell Gold/LAN Manager) computer systems.

### Apple Canada Inc.
**309**

Apple Canada Inc., a subsidiary of Apple Computer Inc., will be displaying state-of-the-art multimedia solutions. Apple's UNIX Platform and the newly introduced products: Apple Macintosh computers have the capacity to run A/UX, MS-DOS and Macintosh O.S. (with disk compatibility) at the same time via true integration.

### QMS Cenade Inc.
**317A**

QMS Inc. is a world leader in the development, manufacturing and marketing of printer systems and software. QMS product lines include monochrome laser printers, color thermal transfer printers, intelligent controllers for impact and non-impact printers and software utilities. The company's extensive product offering encompasses most major printing standards and operating environments, providing an array of printer solutions which are suited a user's most complex printing requirements.

### Q by Jnvell
**317B**

Finally in Canada! Q by Javell introduces a new line of high-performance IBM-compatible personal computers. Key features of the full line include: Award-winning American design and manufacture and a two-year limited warranty on both parts and labour. Both Q a corporate offices and the Q Service Centre are based in Vancouver.

### Azcom Information Systems Inc.
**318**

Azcom is a Novell Gold Authorized Systems Integrator experienced in LAN design and installation from 3 to 140 stations including Gateways and remote E-Mail. We provide on-line telephone support or complete on-site LAN Management. Azcom also is an Advanced Revelation data base Advantage Developer of custom and packaged software. With SQL installation and support. Packages include: Personnel, Fund Raising, Order Entry, Point-of-Sale, Client Contact and R:3270.

### Image Software Ltd.
**319**

Image Software Ltd. is committed to providing the industry's best customer service and software products. We offer lifetime warranties and guaranteed pricing on all software products and service. We employ a full complement of professionals and offer a complete portfolio of integrated, multiuser accounting packages. We also provide hardware and custom software services.

### EMJ Data Systems
**320**

EMJ is a Canadian distributor with 6 offices across Canada. EMJ Data are authorized distributors for VersaCad Acer Data General Interactive UNIX, Sony Intel USRobotics Hitachi ATI Tecmar Alpha Technologies Connecttech Practical Peripherals Digiboard Talking Cynx, Nth Graphics Camtrol Matthaus Renaissance DFT Microsolution, Network Interface. EMJ has service warehouse and sales office facilities in Richmond B C

### Northwest Digital
**321**

Northwest Digital is Canada s largest national full-line Hewlett-Packard dealer. Our commitment to technical excellence and product support has been the cornerstone of our success. The extra value you receive when dealing with Northwest Digital is our experience and ability to provide to our customers the leading edge of computer technology. We don t just sell products — we sell solutions. See us at Booth #321

### Cove Office Products Ltd.
**322**

Cove Office Products Ltd. is featuring the Laserlife process saving up to 75% off the price of a new toner cartridge with up to 10% higher yield. Recycled paper products/copier facsimile computer and laser printer supplies Disks/data cartridges/ribbons/labels/data accessories Priced right and delivered on time (604) 253-5877 fax 255-7744

### The Society of Menegement Accountants of British Columbia
**323**

The Society of Management Accountants offers an accreditation program that distinguishes Canada s 40 000 CMAs from other accountants through a program of practical management training. Among the Society s services to its members and the general public is an ongoing series of professional development seminars with a comprehensive computer training segment. These intensive hands-on sessions are designed specifically for accountants and feature instruction by distinguished professionals in the field. See our display for program details

### Software Publishing Corporation
**325**

SPC develops easy-to-use business software for IBM-type PCs. Entry-level products such as PFS First Choice and First Publisher address the needs of the occasional user and small business. Professional Write and File target the corporate managerial professional. Harvard Graphics 2.3 is the market-leading business presentation graphics package

### The Computer Paper
**344**

The Computer Paper is a free monthly tabloid newspaper that reaches over 130,000 computer users in British Columbia Alberta and Manitoba in three separate editions. Featuring informative reports hardware and software reviews timely articles expert hints and tips and the latest news in the industry. The Computer Paper is the computer user s information source of choice

### Independent Computer Coesultents Association
**345**

A non-profit association of 125 member firms and professionals dedicated to promoting professionalism in the industry. The association offers a variety of benefits to members and serves the general public by means of a referral service and the maintenance of a database/directory of members and member services

### Vend-U-Print
**347**

The Card Express System available from Vend-U-Print is a new and unique machine manufactured in Canada. The system dispenses personalized Business Cards and Mini-Announcements such as invitations notices and advertisements. The system operates as a vending machine and when activated, will prompt the consumer by means of an alpha-numeric touch screen to input the variable data onto a pre-selected card format. The consumer instantly receives the finished product.

### MacWest Computer Society
**349**

The MacWest Computer Society is a non-profit user group dedicated to serving and supporting the needs of Macintosh computer users. Members receive our newsletter and have access to various support and technical services as well as one of the largest and most comprehensive public domain and shareware libraries dedicated exclusively to Macintosh files.

### Computer Exchenge
**346**

Computer Exchange is a S C. owned and operated retail outlet chain featuring a full line of CEX 286 386 and 486 computer systems. The cornerstone of our success has been our dedication to customer satisfaction service and reliability. We offer affordable computer solutions for individuals small business and corporations at both our retail outlets in Vancouver. We are authorized dealers of Novell ACCPAC+ Roland and Xerox Computer Products.

### Cell-Net Telecommunicetions Ltd./Lightel Inc.
**406, 408**

These sister companies are the largest resellers of long distance services in Canada. Operating in the provinces of Ontario, Quebec and British Columbia they offer reduced-rate long distance services as well as call-management reports. Lightel in conjunction with S C. Rail has filed an application with the CRTC to become a facilities-based carrier

### Namtec Systems Inc.
**412A**

Namtec Systems Incorporated founded in 1984 is a computer systems integration and information systems development house specializing in Relational Database SQL High-Performance Decision Support applications in multiuser UNIX/DOS-based LAN and WAN environments. Namtec is an authorized dealer of Acer ACCPAC Lotus SCO UNIX/XENIX, Novell Unify Accel/SQL and more

### Allied Custom Cable
**413**

Allied Custom Cable offers a wide range of standard and custom cable assemblies, patch panels, switch boxes wire harnesses ribbon cable assemblies connector wire and cable assemblies connector wire and cable, coaxial assemblies and RF assemblies

### FocusTronics & Co.
**415**

Focustronics carries a full line of computer keyboards power supplies, computer cases and computer add-on cards. Our line includes the Focus FK 2001 101 key the FK 500 130 key with built-in calculator adjustable speed and 24 function keys the Northgate Omnikey 102, Omnikey Plus and Omnikey Ultra with 36 function keys CSA approved 200-250 watt power supplies from Sendrun and Level and 15 types of cases. Everyone says Focustronics is "The Keyboard Place" but we offer much more than just keyboards.

### Ventura Software Inc.
**419**

Ventura Software Inc. has introduced several prelimes over the last few months. The show display will focus on Ventura Publisher Gold Series and FormBase 1.1. The new Gold Series offers desktop publishing users the flexibility to use the software under GEM-Microsoft Windows 3.0 and OS/2 Presentation Manager. FormBase automates the design manipulation of forms and forms-related data

### First Image
**420**

Confused about where that colour desktop stuff came from at the Trade Show? Then give First Image a call. We can easily identify your requirements provide interfaces for your DOS/ PS/2 or Mac platform, and then train you to become a Multi-Media Magician! We re your local Targa and NuVista dealer and since we ve been there we re here at Booth #420.

### Canadian Standards Associetion
**421**

CSA is a world-leading certification and testing organization. CSA will showcase services it provides to meet the needs of businesses dealing in high technology. Emphasis will be placed on Special Inspection/Acceptance programs that provide time- and cost-effective services. Quality Assurance programs will also be emphasized. Call (604) 273-4581

### MOCO Canada Inc.
**422**

MOCO Canada Inc is the leading independent mobile communications supplier in British Columbia. MOCO Canada will display the new RACOTEK mobile data terminals. The RACOTEK terminals use DOS 3.0 and operate on Clearnet's trunked radio service available in 23 Canadian cities

### 3COM Canada Inc.
**424**

3COM Corporation is a leading independent global data networking company providing multivendor connectivity that spans organizations and businesses worldwide. The company designs manufactures markets and supports networking systems based on industry standards and open systems architecture. 3COM supplies over 350 networking products including network adapters 10BASET repeaters bridges routers 3+Open LAN Manager and gateways

### Microbase Systems Inc.
**425**

Microbase a developer of seamlessly integrated data imaging and document imaging software for professional work groups will demonstrate its imaging software to corporations government and VAR s. The imaging software is specifically designed to extend any PC-based machine or network into a complete data-imaging or document-imaging system in a way that is quick, easy and cost-effective

### Westech Informatice Systems Inc.
**426**

Westech Information Systems Inc. and Grid Systems Canada will be displaying "state of the art" technologies developed for distributed systems

Westech will demonstrate applications utilizing their Graphic User Interface application tools, the GridPad handwriting technology and their LAN technologies

Grid Systems will introduce their latest field systems hardware including the highly publicized 1550SX Laptop computer. The 1550 is a 20MHz laptop with built-in ISOPOINT bar for Windows

### Dominice Directory Company
**430**

Dominion Directory Company, the publishing agent for B.C. s Yellow Pages, will be featuring the benefits of "In Touch" and the "Talking Yellow Pages". "Talking Yellow Pages" adds the extra dimension of sound to your Yellow Pages advertising while "In Touch" provides information such as news weather horoscopes etc. Stop, look and listen to these revolutionary services.

### Ralph's Radio Ltd.
**431, 432**

At Ralph s we take the time to ensure your cellular communication needs are fully met. We guarantee everything we sell and service. Visit our booth and see the new Motorola hand-held personal cellular telephone as well as cellular phones from NEC and Audiovox. Ralph s-authorized agents for B.C. Cellular

### Prism Desktop Publishing Inc.
**433**

Prism Desktop Publishing Inc. would like to draw your attention to the new standard in desktop publishing. Introducing LaserMaster's all-new tabloid-size 1200 dpi Plain-Paper Typesetter along with the 1000 dpi Plain-Paper Typesetter. Increase your laser's resolution to 800 dpi with the MS8 controller card or take a look at our 19" GrayScale Outline Font Monitor

### Officce Automation Sys. Group
**435**

Office Automation Systems Group has emerged to meet the growing demands for specialists with microminit and mainframe expertise. As a leader in the recruitment and placement of computer specialists we are committed to providing the most highly quali-


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| Performance | one 3½" External Bay, three 5¼" External Bays |
| Expansion | Landmark—42 MIPS Test—5.8 Norton SI—31 |
| | 3x8—Bit Slots 4x16—Bit Slots 1x32 Bit Slot |

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find computer professional for contract, consulting or permanent positions

### Cardz Computers
**437**

Cardz is a custom manufacturer of complete 386/486 systems. Pricing is considered the lowest in Canada on a broad spectrum of hardware. Cardz 386S is an advanced bulletin board with more features than anyother in Western Canada. A full on-line store is implemented through B.C. and Alberta via Cardz BBS.

### VTECH LASER Computers Ltd.
**441**

From the $299 companion portable LASER PC4 computer to the LASER 486 Tower the LASER line of compatibles are international bestsellers. The LASER Pal 286 has been touted as the PSI's only real competitor in publications as well as the popular television daily "Good Morning America." Featured in the Pacific Rim Show at Booth 441 LASER is proud to introduce the long awaited Laptop Series.

### Westech Information Systems Inc.
**442**

Westech Information Systems Inc. provides systems integration and consulting services to utility government and private sector clients throughout North America. Regionally Westech also provides Distributed Systems services including Local Area Network installation and support, Personal Computer development, customization of proprietary software packages, CASE/Workbench software and support, and both mainframe and PC technical support.

### Pleaman Publications Ltd.
**443**

Publications on exhibit include Computer Dealer News for computer resellers, SI Business for system integrators/VARs, Computing Canada for information processing management, and Direction Informatique for French-speaking information processing management and Quebec-based computer resellers.

### RJM Systems Ltd.
**444**

RJM develops PC-delivered learning tools designed to meet the exact training needs of your organization. Our in-house production facility uses the RJM proprietary authoring tools (SASY) to produce highly interactive learning environments that incorporate simulations, expert system tutorials, graphics, text, videodisc and digitized video and sound. Whether you require an on-line performance support system or an on-line tutorial, our team of experts will provide you with the learning tools that meet your training objectives.

### C-Tron Systems Corp.
**446**

C-Tron Systems Corp. installs certifies and supports twisted pair, coaxial or fiber optical cabling systems. We specialize in LAN applications for single-building, multi-building or campus environments. We offer technical expertise, full 3-year warranties, maintenance options and a reputation for superior design, installation and support. Our offices: 3785 Myrtle St., Burnaby, B.C. (604) 432-9980; 3378 Douglas St., Victoria, B.C. (604) 386-5648.

### Certified General Accountants Association of B.C.
**447**

B.C.'s largest professional accounting association. CGA firms specialize in small business, offering clients a full range of services including accounting, auditing, tax advice, management consulting and estate and personal financial planning.


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**You said make it simple.** So we gave the QMS-PS 410 the intelligence to actually "think for you" by automatically switching between emulations and interfaces! This printer has ESP (Emulation Sensing Processor) technology,† which interprets incoming data and *automatically* chooses the appropriate printer language. And you can send data *simultaneously* to its AppleTalk®, serial and parallel interfaces! There's no need to change switch settings or send complicated software commands.

**You said make it fast.** So we created a super-fast controller with a 68020 processor and third generation QMS® ASAP™ (Advanced Systems Architecture for PostScript) technology, which incorporates the latest in component and controller design.

**You said make it expandable.** So we made a variety of options available, including an HP-GL® emulation card, Adobe typeface cards, HP-compatible font cards, memory upgrades and extended paper handling capabilities.

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*Canadian Suggested list price $3995
†Patent Pending

See us at Booth #317A.


### Vancouver Cellular Ltd.
**446**

Vancouver Cellular Limited is a full-service cellular centre, providing all aspects of cellular and mobile office needs across Canada from cost-effective lease programs to the latest in executive portable communications. For more information on today's highest-return investment in time management, call (604) 684-0910 or 1-800-665-9335.

### B.C. Cellular
**452**

B.C. Cellular is the leader in the British Columbia cellular communications industry. Our knowledge and expertise allow us to provide tailored solutions to your evolving needs for mobile communications products and services — from cellular telephones and the fast-emerging world of personal communications, to mobile fax and data, electronic voice mail and paging.

### Xerox Service Centre
**453 & 454**

The Xerox Service Centre in Vancouver spearheads a national service network across Canada. Through Maintenance Agreements or Time & Material repairs, we support most microcomputers and peripherals available today. The Service Centre also markets Datastrain, Acer, Everex, Novell and AST products, among others. For more information please come and visit our booth at the Pacific Rim show or call us at 568-2380 during regular business hours.

### Canadian Information Processing Society
**455**

The Canadian Information Processing Society (CIPS) with over 8000 members is Canada's largest association representing professionals in the information processing industry. Since its inception in 1958, the society has been attracting business people, scientists, educators and others in both the public and private sectors who make their careers in computing and information processing.

### Diplomat Coffee Systems
**456B**

Diplomat is Canada's major coffee service company offering a variety of special blends including Kona, 100% Colombian Mocha Java and naturally decaffeinated coffees. We also feature a full selection of allied products such as creamers, sugar, hot chocolate and cold drinks. Our service includes the free use of CSA-approved equipment such as our new space-saving Diplomat brewers. Come see us at Booth 456B for a taste of our brew!

### Vision Presentations Inc.
**457**

Vision Presentations Inc. produces slides, overheads and 4"x5" transparencies from the PC or Macintosh. Vision is the first service bureau in Vancouver to provide imaging from Windows software and the only imaging service to output colour images to 4"x5" at 8K resolution. Enter Vision a draw to win MS PowerPoint for either the Mac or PC.

### Vancouver School Board
**458**

Vancouver School Board is your most complete Business and Computer Training Institution. We offer specialized instruction in micro computer technology from industry standard applications in their latest revision to custom and innovative business software solutions. Our labs consist of Networked IBM PS/2 and Mac solutions, high-end CAD and Desktop Publishing workstations.

The Corporate Center Training Division offers specialized staff training programs and seminars that can be tailored to your company's specific needs. Our booth will also show you the resources that are available in our newest Business and Computer Training Centre.

### Vancouver Netware Users' Group
**459**

The Vancouver Netware Users Group is a non-profit organization of Novell Netware and users consultants and resellers. Our mandate is to provide an educational forum for end users. If you would like to share with and learn from fellow network users, you can find out how by visiting Booth 459.

### Atari (Canada) Corp.
**463**

Atari Canada is a leading manufacturer of home and business computers. Premiering at the show is the new Mega STe 68000 16 MHz computer system. Also featured is the new TT-32 bit, 32 MHz 68030 workstation delivering state-of-the-art DTP and CAD solutions. Visitors are invited to see and experience Atari's world leadership in the music industry through entertaining live MIDI performances. The exciting product line-up for the show also includes demonstrations of the Portfolio, the world's smallest hand-held organizer/computer running productivity applications as well as communicating with a PC.

### Fujikama O.A. Distribution (Western) Inc.
**465**

Manufacturer and distributor of Fujikama computer components and peripherals. Well established in the U.S. and Ontario, Fujikama has recently opened a new distribution facility in British Columbia. Specializing in 286/386/486 motherboards, VGA Cards, Controller Cards, Hard/Floppy Drives and Super VGA Monitors, we also carry a complete line of system units and laptops.

### Hogan Computer Corporation
**501**

Hogan Computer Corporation is a Vancouver-based microcomputer practice providing business and professional clients with a wide range of technical services and premium products. At this year's show, Hogan is demonstrating Windows-based systems for executives, integrated accounting solutions for GST problems and CADD systems for local and remote offices. Take this opportunity to talk to their specialists about your specific office needs. We are available to help with advice on networks, data integration, system management and training.

### Distinctive Travel
**502, 503**

DISTINCTIVE TRAVEL, located downtown, is a well-established Vancouver agency serving a diversified loyal clientele. Close links to the business community and a good working relationship with DELTA AIRLINES prompts us to co-sponsor the exciting grand prize of airline tickets to a Pacific Rim destination. See DISTINCTIVE TRAVEL and DELTA AIRLINES at the show to enter our fabulous prize draw.

### VMS Vancouver Micro Support
**512**

A full-service company, VMS can assist your organization in the analysis, selection, acquisition and implementation of technologically current computing equipment and services. Our expertise as a company spans from single workstations to Local/Wide Area Networks and Systems Programming. Come to the booth to enter our prize drawing.

### Phonetix Corporation
**513**

Phonetix Corporation is a Canadian company providing a premier offering of advanced voice processing solutions including Voice Mail and Interactive Voice Response. We feature low-cost voice recognition, a menu-driven application generator and off-the-shelf host interfaces. Dealers welcome. Please call (403) 240-9030.

### Servex Computers, Inc.
**514, 515, 516A**

Servex Computers is the exclusive distributor for Everex in Canada, with offices across Canada. Our product range includes graphics, I/O and network adapters, drives, laptops, monitors, printers and streaming tapes. We distribute the complete array of AGI, step and tempo Desktops and Towers. Servex stands for service, value and excellence!

### Micro Supply (Canada) Ltd.
**516B**

We at Micro Supply (Canada) Ltd. are proud to announce the opening of our first Canadian office in Richmond, B.C.

With the support of Micro Supply of San Jose, California, we are able to offer top-value products at competitive prices compared with offshore products.

Our superior service and technical expertise will enable us to become a major force in the computer industry in Canada.

Dealer inquiries are welcome.

### Education Development Centre (Part of the B.C. Tel Group)
**517**

The Education Development Centre is located in Burnaby in a handsome three-storey 180 000 square foot facility containing 88 ergonomically designed classrooms, a fitness centre, cafeteria and medical services. In excess of 20,000 Canadian and International students enrol annually to participate in over 550 courses covering every aspect of information technology, telecommunications, instructional technology, management skills, customer contact and custom course design. Courses extremely popular in the lower mainland and B.C. as a whole are: customer contact, information technology management and safety.

### Practical Peripherals
**518**

Practical Peripherals will show new modems that continue the company's tradition of superior U.S.-made quality at highly competitive prices. New products include a complete line of modems for Toshiba and NEC (multi-speed and ProSpeed) laptops, a 9600 bps V.32/V.42 bis external modem, a 2400 bps portable (pocket size) modem, and 2400 bps V.42 bis internal and external modems. See why Practical Peripherals modems are consistently best-sellers. All products come with a five (5) year warranty.

### 3M Canada Inc.
**519**

3M Visual Systems offers a complete line of LCD projection panels, transparency films and overhead projectors. For more effective presentations and better meetings, contact our Vancouver office at (604) 273-2211 or call Freeman Smyth, an authorized 3M Visual Systems Dealer at (604) 251-2448.

### Kodak Canada Inc.
**523, 524, 530**

The Kodak Canada exhibit will feature an array of electronic still-imaging products including the Kodak XLT700 Digital Continuous Tone Printer. Other products include the Kodak Diconix personal printer products and the recently announced Kodak Photo CD System.

### Telequip Services Inc.
**525**

Telequip Services Inc. is a modern-day success story. While only in its fourth year, it has become B.C.'s leading interconnect telecommunications company. Knowledgeable, experienced professionals will help you with Network Cost Reductions, Call Accounting, Digital Telephone Equipment, (sales, service and installation), Voice Mail and Data Cabling. Telequip Services Inc. has its own Leasing Division and maintains three Service and Sales offices in Surrey, North Vancouver and Victoria.

### Targus Canada Ltd.
**525**

Manufacturer of deluxe leather and nylon carrying cases for the portable office industry.

### Sharp's A/V Ltd.
**527**

Sharp's A/V Ltd. with 6 offices is the largest industrial audio-visual dealer in Western Canada. Sharp's is a full sales / service / rentals / system design organization. Computer graphics and video projection our specialty.

### Computer Users' Groups of B.C.
**525**

Users groups offer a level of support to computer users that is unmatched anywhere else in the dealer/vendor channel. Made up entirely of volunteers, these groups offer business and other users a natural conduit for information exchange and problem solving. Information on all local users' groups will be available.

### Quality Learning Systems Inc.
**529**

Quality Learning Systems (QLS) is a Canadian software company specializing in the development and production of high-quality educational software for school-aged students. QLS's software package—marketed under the name "SchoolWare"—will be available in computer stores across Canada in January. For more information, call (604) 482 2582.

### Fujitsu Canada Inc.
**534**

Fujitsu Canada, a subsidiary of the world's second-largest computer company, the $20 billion Fujitsu Limited, will feature its complete line of computer peripherals and office automation products. A highlight of the exhibit will be Fujitsu's new Pocket Commander, the world's smallest, lightest portable cellular phone. A new line of quality facsimile machines

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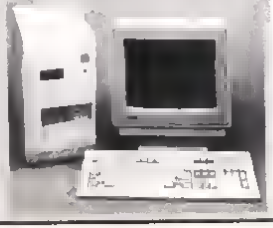
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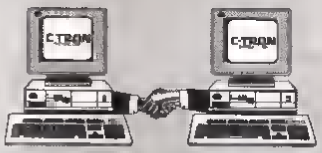








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### Express Micro 576

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# MAC Networks

## Not Always 'Plug & Play'

By Richard A. Sparks

Contrary to popular opinion, integrating several Macintosh computers for networking business solutions is not as simple as plugging them in.

Networks must be designed for expansion and flexibility. A detailed network layout design is crucial for the success of a networked configuration. Offices can be wired now for future expansion and be flexible enough so that users can change offices and computers or add new users without disrupting the entire network. Flexibility also depends heavily on the network topology or layout that is decided upon.

In my experience, a *backbone topology* is suited for small LocalTalk networks of less than ten users sharing or printing small files. Each node has its own wall jack, and termination is put in the jack at the beginning and the end of the Backbone. The cable from the PhoneNet connector is plugged into the wall jack.

The benefits of doing it this way as opposed to *daisy-chaining* each node via the PhoneNet connectors is that when a user disconnects and moves to a new location, the entire network does not come to an abrupt stop. Disconnecting a workstation only severs its connection to the network and does not affect other users.

For larger networks or for offices that anticipate growth in the number of users to be more than ten, an active star topology should be used. At the centre of this network a star hub is installed.

A *star hub* is a multiport repeater that receives signals from a device on one port, amplifies them, then retransmits them to devices on other ports. If a port jams, the star hub will automatically shut it down. All nodes on that port will stop network operation until the problem is resolved and then the port will be put back online.

To avoid degradation on network performance you should daisy-chain no more than two devices from one port on a star hub.

Proper cabling is very important. Recommended cable is 24-gauge solid copper. Two-conductor twisted-pair cable is common, but I would recommend three-conductor for new networks as it appears the 10Base-T Twisted Pair Ethernet standard is making inroads. Twisted Pair Ethernet requires the use of four of the wires, the other two can be used for a standard LocalTalk connection.

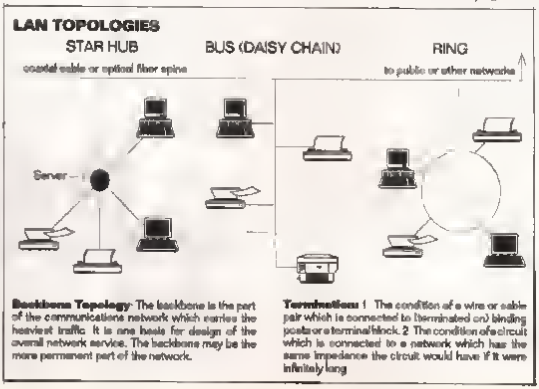
It is important to install cable according to building code specifications. Plenum cable must run through the ceilings. PVC cable can run along the floors.

*Termination* of any network topology is crucial to its performance. You will know if a network is not terminated properly when network devices such as laser printers or file servers appear and disappear under the chooser menu or you get the error message "can't find printer." When the Print command is invoked, the signal goes to the printer and continues travelling to the end of the cable; if a terminator is not present to absorb the signal, the signal bounces back down the network causing havoc and chaos in the form of the printer disappearing.

Problems such as "system errors" or the system locking up when transferring files over a network from a file server can also occur because of improper termination. Proper termination avoids this phenomena because the terminators absorb high-level and low-level signals which actually are varying degrees of voltage. Doing this internally in the wall jacks is highly recommended.

Macintoshes that have Ethernet transceivers with 10Base-T standard built-in connections or are using the PhoneNet StarConnector EN, do not require termination because it is built into the transceivers. Machines using Ethernet thinwire or thickwire connectors will require the standard termination for Ethernet networks.

Continued page 21




**Backbone Topology**: The backbone is the part of the communications network which carries the heaviest traffic. It is one basis for design of the overall network service. The backbone may be the more permanent part of the network.

**Termination**: 1. The condition of a wire or cable pair which is connected to (terminated on) binding posts or a terminal block. 2. The condition of a circuit which is connected to a network which has the same impedance the circuit would have if it were infinitely long.

# UNIX News

## Unix Market Study In Europe

LONDON, ENGLAND, DEC 18 (NB) — The market for Unix systems in Europe is poised to grow from 2.9 billion ecu in 1990 to 9.0 billion ecu in 1995, an Ovum study predicted. Over this period the fastest growing sector will be large systems costing $200,000 or more.

The British study centre Ovum said in their study, "Unix In Europe- Commercial Users and Markets," that Germany has the largest market share due to Siemens-Sinix operating system that has 21.7 percent of the market, followed by Britain (16.1 %), France (14.8 %) and Italy (11.5 %).

Applications enabling software, such as databases and supporting developing tools are forecast to grow in Europe from 392 million ecu to 1,273 million ecu between now and 1995, the study said. The horizontal applications software market, including office automation and general accounting packages are set to climb from 276 million ecu to 1,752 million in the same period.

Separating the winners from the losers, authors Peck Tan and Peter Quinn said that among the winners one will certainly find the users who no longer are locked in to a vendor. Software vendors with the most to gain from the availability of standards and the convergence of Unix into one (or two) version(s) are Sybase, Informix, Oracle, Ingres and office automation vendors such as Uniplex and Quadratron. Niche hardware vendors such as Sun Microsystems, Pyramid, Sequent and MIPS will benefit from their early start while older vendors such as HP will be actively engaged due to the acquisition of Apollo.

The main losers the authors said, will be the midrange proprietary vendors such as Wang, Prime and Data General who already saw major losses in the late 1980s. Even Digital Equipment will find Unix eating into its VMS market, the authors said.

IBM was also put on the losers' list because "it cannot hope to dominate the Unix market as it did with the personal computers," Tan and Quinn maintained. "More importantly, IBM's Risc/6000 Unix systems will compete head-on with IBM's proprietary products in the midrange with the Risc/6000 having the edge on price and performance but offering IBM the lowest profit margins."

The study warned that as Unix becomes a commodity product, suppliers should be aware that the level of support and services they offer will be crucial for vendor differentiation. Users will be looking for one-stop shops for their open systems and a complete systems integration capability will be a requirement. The 1990s will be the decade of software and services, not hardware, Ovum said.

## NeXT Computer May Have Security Problems

WASHINGTON D.C., NOV 27 (NB) — CAIC the Computer Incident Advisory Capability, has advised that they have received a series of reports on security problems involving the operating system of the NeXT computer and advises remedies including the removal or replacement of some files.

Detailed information and fixes are available on the NIST (National Institute of Standards and Technology) security BBS at 301 948-5717 (8-bit, NO parity, 1 stop bit) but a few specific cases follow.

Users of Release 1.0 and 1.0a should remove file /usr/etc/restore0.9. This file allows any user to gain root access and is only needed during installation. You must have root status to remove this file using the command # /bin/rm /usr/etc/restore0.9.

If your NeXT system has publicly accessible printers, replace /usr/lib/NextPrinter/npd with a more secure version obtained from NeXT.

The BuildDisk command allows any user to become root, change permissions to eliminate this problem.

For more details on these and several other potential security problems, contact the NeXT Support Center.

## Dell's Unix V4 Released in UK

BRACKNELL, BERKSHIRE, ENGLAND, NOV 27 (NB)—Dell Computer Corporation has announced the release of Unix System V.4 for its desktop and floor-mounted PCs. The release follows September's launch of a range of Unix computers and related multi-disk storage systems plus networking products.

Dell's SVR4 version of Unix will ship to users early next month. Prices start from UKP 3,515 for a two-user license running on a System 320LX with 4MB of RAM, an 80MB hard disk and tape back-up unit. A desk-side System 433TE with 8MB of RAM, 640MB hard disk, tape back-up unit and an unlimited user license for Unix SVR4 costs UKP 11,865.

For existing users of Unix on its hardware, Dell is offering an upgrade kit for Unix Release 3.2 users for UKP 399 on a limited user basis, and UKP 599 for an unlimited user version of Unix SVR4.

According to Roger Stone, Dell UK's product marketing manager, Dell is one of the first PC manufacturers to offer an enhanced version of Unix SVR4. "This further underlines our commitment to provide enhanced systems at aggressive prices. When purchased in conjunction with a Dell system, Unix SVR4 gives users with complete industry standard hardware and software solutions at outstanding price/performance," he said.

Contact: Dell Computer Corporation - Tel 0344-869456

## Hong Kong: Oracle Intros Servers For PC Unix

WANCHAI, HONG KONG, NOV 21 (NB) — Oracle Corporation has announced a series of Oracle Servers for PC Unix. They are described as the first open database servers to run on a full range of high-performance single and multiprocessor PCs, including the dual processor 486 Compaq Systempro.

The new servers cover SCO Unix, SCO Unix MPX, SCO Xenix, Interactive Systems Unix and AT&T Unix V/386. The server for SCO Unix MPX is the first implementation of native symmetric multiprocessing (SMP) database management in the PC environment.

"This is a landmark event in the PC marketplace," said Richard H. Hess, chief executive at Oracle Systems Hong Kong Ltd. "Oracle Server's MPX implementation takes full advantage of the Compaq Systempro's 32-bit, 386/486 dual processor architecture and is the first database server to run symmetrically on both processors."

Hess added "This multiprocessor scaling is made possible by Oracle's portable, connectable architecture. We expect that as more powerful multiprocessor systems become available, Oracle Server can be scaled to show significant performance gains."

Contact: Venus Chan, Oracle, + 852 824 0118




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# Local Area Networks

## LANtastic 3.0

### PC Networking on a Budget

*By Rob Lowen*

**PRODUCT** LANtastic Network Operating System Version 3.0 (Ethernet) by Artisoft Inc., Tucson, AZ.

**SYSTEM REQUIREMENTS** DOS-based computer of any type: XT-type, 286, or 386. DOS versions 3.1, 3.3 or higher.

According to a number of reviews in major computer magazines, LANtastic is the best value available for DOS-based PC networking. Among the accolades are two Editor's Choice awards from *PC Magazine*.

DOS-based networks occupy the middle ground in PC networking technology. These networks require adapter cards and use DOS as the basis of the server's filing system.

At the low end are zero-slot LANs, which communicate through serial or parallel ports (at relatively slow speed) and therefore do not require adapter cards. High-end networks use proprietary operating systems (e.g., NetWare) or OS/2 (e.g., LAN Manager) to get around DOS networking limitations.

DOS-based networks can have one, several or all computers on the network acting as servers, allowing maximum use of existing hardware. DOS-based network systems are well-suited to applications such as word processing, spreadsheets and graphics. Database applications, with their frequent disk accesses, are feasible if supported by a server with sufficient power.

A review in *PC Magazine* says that LANtastic throughput performance is far higher than any of its DOS-based competition and compares very favorably with that of high-end networks. "... LANtastic, the best peer-to-peer performer, was as efficient as some of these heavy-duty systems" (May 20, 1990, page 122).

Another key feature of LANtastic is its low RAM requirements of about 12K for a workstation and 40K for a server. Artisoft's own Ethernet card is a Novell NE2000 clone, and can run the Novell NE2000 driver by moving a jumper on the card.

LANtastic has extensive security provisions, including time-of-day access restrictions, password expiry after a certain number of days, complete audit trail maintenance and many different levels of access to server resources.

LANtastic is sold as a starter kit for the first two computers. The kit includes two Ethernet cards, 25 feet of thin Ethernet cable (RG58/U), two terminators, and software.

All the network software is on one 360 KB diskette and comes with a licence for up to 120 users. Additional computers require only the Ethernet card and cable.

Artisoft claims LANtastic is compatible with most Netbios adapters and as such also offers the network operating system alone, without hardware. Other LANtastic features are electronic mail, CD-ROM drive support,


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support for diskless workstations, up to 300 log-ins per server and up to 5100 open files per server (DOS limit is 250).

An extra-cost feature is the LANtastic Voice Card for voice mail and voice communication over the network. Artisoft also offers a 2 megabit per second proprietary version, which sells for about 70 percent of the Ethernet version.

Installation of LANtastic is feasible for a confident careful user who knows how to open a computer, install adapter cards and move jumpers and who has mapped out how the network should be used and how files should be organized. Potential wrinkles in the installation process are avoiding interrupt conflicts with other I/O devices and memory address conflicts.

Set-up and maintenance of the network, including buffer sizes, access privileges and network resources, is through a menu system, with on-line help and suggestions for appropriate parameters for efficient operation. Another menu system is available for users to review print queues, send and receive e-mail, and to log in or out of servers.

It should be remembered that networks of any type add complexity to the computing environment in return for the benefits of improved work-group productivity.

## A LANtastic Installation

The rest of this article will describe a LANtastic installation in a firm of planning consultants. There was a mixture of nine computers: XT-type (Compaq, IBM) 286 (ANO) and 386SX (AST).

The overriding consideration in this particular installation was budget: there was no money for a dedicated file server of any type. Because of this and the fact that the largest hard disk was 40 megabytes, the multiple server or peer-to-peer arrangement was essential to make maximum use of existing computer resources. The criteria were thus low cost, multiple undedicated servers, low RAM requirements, relatively high speed and successful operation on all computers.

The natural choice was LANtastic. The Ethernet version was chosen because of the higher transfer rate and because it is non-proprietary technology. The total network cost including Ethernet cables and sales tax came to less than $500 per computer.

The concept of multiple servers suited this planning office perfectly. The manager for each project would keep the files for his or her project on his or her own hard disk in a directory and subdirectories dedicated to one project. Other persons working on the project could access those files as required through the network.

Getting a functioning, two-station network operational took less than an hour, including the installation of the network cards in the computers, hooking up the cable, installing the software and setting up network access. The default jumper settings on the cards worked fine.

The remaining 7 cards were installed when everyone was satisfied that all existing spreadsheet, word processing and database software worked successfully. The only fine-tuning required for network performance was to make some minor changes to the CONFIG.SYS file and to allocate more net work buffers. ■

## Mac Networks

*continued from page 19*

Another critical aspect of Mac networks is that all users must be using the appropriate system software, same version of client/server software and the same printer drivers so no conflicts or incompatibilities occur. Older Macs also need the "AppleTalk" system driver which you can acquire at your local dealer.

Many local companies and corporations are upgrading their existing LocalTalk networks and implementing twisted-pair Ethernet. Ethernet is great for networks that transfer large data or graphic files. It provides a tremendous boost in speed, 10Mbps compared to LocalTalk's 230 Kbps. Some of these networks are being connected via routers, bridges and gateways, creating Internetworks and wide-area network configurations. Several Local Area Networks consisting of heterogeneous cabling environments include Twisted-pair, Arcnet, Token-Ring, SNA, Ethernet, etc.

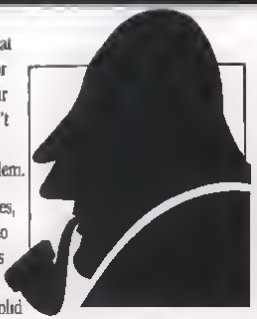
Networking protocols over these hardware include LocalTalk, EtherTalk, ArcTalk, TokenTalk, Unix, TCP/IP, DECNET, Lat, PCSA, etc. Obviously, networking now is no longer a plug & play situation.

Companies that depend on networks as the core technology for their business need to have a strategy for managing, maintaining and repairing the network. Each hour the network is down can mean hundreds or even thousands of dollars in lost productivity and lost revenues.

For this reason, and because of the increasing complexities of multivendor networking, network specialists are being hired full-time or network consultants are being contracted to protect and enhance networking business solutions. ■

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# Seminars

## CIPS Perspective '91–Seminar Program

### SEMINAR SCHEDULE

| MONDAY, JANUARY 14 | | TUESDAY, JANUARY 15 | |
|---|---|---|---|
| 8:30 | **"ORGANIZATIONS WHICH MAKE HISTORY OR ARE HISTORY"**<br>– Bert Bolton | 9:00 | **"GENTLEMEN: START YOUR (DATABASE) ENGINES!..."**<br>–Revett Eldred |
| 9:30 | **"PRACTICAL NETWORK DESIGN"**<br>– Mike Wolfe | | **"CLIENT/SERVER MODEL"**<br>–Bob Caldwell & Sandy McKean |
| | **"CANADIAN PLUS: A REAL-CASE SUCCESS STORY"**<br>– Emie Bollo | 10:30 | **"OPEN SYSTEMS: MYTH, REALITY, AND IN-BETWEEN"**<br>–Paul Digney |
| 11:00 | **"TELECOMMUNICATIONS – A STRATEGIC SUSINESS PARTNER"**<br>–Tom Jones | | **"THE MEDIA SISTERS IN CONCERT"**<br>–Rick Sharpe |
| 12:30 | **"NETWORK COMPUTING SOLUTIONS IN THE '90S"**<br>–Roosevelt Giles | 12:00 | **"FROM THE M.I.S GLASS HOUSE TO THE CORPORATE DOME"**<br>–David McGlaughlin |
| 2:15 | **"ISDN: BETWEEN VOICE & CENTREX"**<br>–Deb Reidlinger | 1:45 | **"THE NEW BUSINESS ANALYSIS"**<br>–Trond Frantzen |
| | **"UNIX IN THE NEXT DECADE"**<br>–Roosevelt Giles | | **"IMAGING – TECHNOLOGY, APPLICATIONS, AND THE MARKETPLACE"**<br>–Michael Bookbinder |
| 3:45 | **"EDI: USERS' PERSPECTIVES" PANEL**<br>–Moderator: John Glover | 3:15 | **"PRACTICAL EXPERIENCE WITH OBJECT-ORIENTED TECHNOLOGY"**<br>Simon Mok |
| | **"RISC – SUCCESS IN COMMERCIAL APPLICATIONS TODAY"**<br>–Andreas Krylakou | | **"EVALUATION OF THE INTERFACE"**<br>–Joy Mountford |

### Information '91 Showcase

New this year at the Pacific Rim Computer Communication Show is Information '91 Showcase, with scheduled presentations daily by well-known industry experts and innovators.

Look for the schedules posted at the Show, and hear these distinguished leaders introduce their views, ideas and products

- George Pajari, the Unix expert, will speak daily on Open Systems.
- Doug Gray, author and marketing expert, will speak on How to Make Money with Your Home Computer
- Demonstrations by First Image on 3-D animation, video production, architectural rendering and digital landscaping, for either MS-DOS or Macintosh; including the introduction of type fonts for the Mandarin, Punjabi and Vietnamese languages

### Prizes!

Each day of the Show a draw will be made for a PC Desktop Computer with a software package–a prize valued at over $4,000 The computer and software prizes (three in all to be awarded) have been supplied by Servex Computers Inc. and Syspro (Canada) Inc.

The prize draw itself will be unique. Showgoers will enter their name and other data not on a piece of paper that goes into a barrel but directly into a computer At 5:45 pm each show day, the computer will tumble its databank and proclaim the winner.

The Grand Prize at the Show will be drawn on the last day from all these entries – and a lucky winner will receive two round-trip economy tickets to Taipei, Taiwan, via Delta Airlines, and four nights accommodation at the Taipei Hilton.

The Grand Prize has been arranged by Distinctive Travel Vancouver





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### CIPS Keynote Luncheon Addresses

The Keynote Addresses will be presented on the Monday and Tuesday of the Show, and include lunch

On Monday January 14 at 12:30 pm Roosevelt Giles, president of Information Management Systems, Inc. will present Network Computing Solutions in the '90s", sponsored by AT&T Canada Inc.

The Tuesday, January 15 12:00 noon address will feature David B McGlaughlin, who has served as president of Amdahl Canada, among other executive positions. Mr McGlaughlin will present "From the MIS Glass House to the Corporate Dome."

For information and pre-registration please call 681-2796. Tickets are $45 for each Luncheon Address.



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